DETERMINANTS OF BYPASSING COUNTY PUBLIC HEALTH FACILITIES AMONG WOMEN SEEKING CHILDBIRTH SERVICES AT THE MOI TEACHING AND REFERRAL HOSPITAL, ELDORET

Jepkosgei Damaris

A Thesis Submitted in Partial Fulfillment of the Requirements for the award of Master of Science in Advanced Nursing Practice (Community Health) of Masinde Muliro University of Science and Technology

August, 2020

DECLARATION

This thesis is my original work and has not been presented for a degree or an award in any other university.

Sign …… Date ……24 AUG 2020……

Jepkosgei Damaris

HNR/G/36/15

CERTIFICATION

The undersigned certify that they have read and hereby recommend for acceptance of Masinde Muliro University of Science and Technology a thesis entitled; "**Determinants Of Bypassing County Public Health Facilities Among Women Seeking Childbirth Services At The Moi Teaching And Referral Hospital, Eldoret**".

Sign …… Date ……24 AUGUST 2020……

Mr. John Arudo

Department of Clinical Nursing and Health Informatics
Masinde Muliro University of Science and Technology

Sign …… Date ……

Dr. Mary Kipmerewo

Department of Reproductive Health, Midwifery and Child Health
Masinde Muliro University of Science and Technology

DEDICATION

To my immediate family for urging me on to the finish line; I am forever grateful.

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ABSTRACT

Strong preferences are revealed when patients fail to utilize their nearby facilities and seek health care services at another facility. Bypassing rates for childbirth has been documented in literature and it ranges between 30% and 70 %. At Moi Teaching and Referral Hospital similar observation is made with majority of the women delivering at the facility having bypassed their nearby county health facilities. Thus, the current study sought to identify the individual and health facility factors that inform a woman's decision to bypass county public health care facilities and seek childbirth services at Moi Teaching and Referral Hospital. A health facility based cross sectional study was conducted using quantitative approach of data collection. A total of 399 respondents were incorporated in the study. The independent variables studied were maternal age, marital status, level of education, occupation, parity, and previous pregnancy history, level of care at the public health facility, functionality of health facilities and ease of access of the nearest health facility. The dependent variable was bypassing health facilities. Descriptive statistics, bivariate and multivariate logistic regressions were used in data analysis. A *p* value less than 0.05 was considered statistically significant at 95% confidence interval. Results obtained showed that out of the 399 study participants, 76.7% of the women who delivered at Moi Teaching and Referral Hospital bypassed their nearby health facilities. Among the individual characteristics that significantly influenced bypassing were home county of residence (OR: 4.9; 95% CI: 2.2-11.1; p= 0.0001), having received ANC at MTRH (OR: 9.6; 95% CI: 8.1-14.6; p= <0.0001) history of assisted delivery or CS (OR: 0.2; 95% CI: 0.1-0.6; p= 0.006)and history of pregnancy related complications (OR: 0.1; 95% CI: 0.04-0.42; p=0.0004). Health facility factors that were significantly associated with bypassing were ambulance availability (OR: 0.4; 95% CI: 0.2-0.9; p= 0.03) and the availability of functional theatre and doctor to handle emergency cesarean sections (OR: 0.4; 95% CI: 0.2-0.8; p=0.01).Bypassing county health facilities therefore is a common phenomenon in Uasin Gishu County, especially among women residing within the county. Women are less likely to bypass facilities that are well equipped with a functional theatre as well as a standby doctor who can handle obstetric emergencies. The study recommended that there is need to create more awareness on the delivery service availability at the county health facilities. There is also the need to strengthen referral guidelines between the different tiers of care emphasizing the need to utilize nearby facilities for childbirth. More health facilities should also be equipped with drugs and supplies as well as functional theatres that can handle emergencies.

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LIST OF ABBREVIATIONS AND ACRONYMS

ANC	Antenatal Care
GoK	Government of Kenya
KHSRS	Kenya Health Sector Referral Strategy
MDG	Millennium Development Goals
MoMs	Ministry of Medical services
MoPHs	Ministry of Public Health and Sanitation
MMR	Maternal Mortality Rates
MTRH	Moi Teaching and Referral Hospital.
PHC	Primary Health Care
SBA	Skilled Birth Attendant
SSA	Sub Saharan Africa
WHO	World Health Organization.

CHAPTER ONE

INTRODUCTION

1.1 Overview

This section focuses on the background to the study, the statement of the problem, study objectives, research questions, significance of the study, limitations and finally the conceptual framework.

1.2 Background to the study

Globally, maternal mortality has been declining. In 2015, the World Health Organization (WHO) estimated a global maternal mortality ratio (MMR) of 216 per 100,000 live births representing a 44% reduction over a period of 25 years since the setting of the Millennium Development Goals (MDGs) (WHO, 2015). Ninety nine percent (99%) of these deaths occurred in developing countries out of which 66% were in the Sub Saharan Africa (SSA) region alone (WHO, 2018).In order to reduce these rates, women are required to deliver with a skilled health-care professional who can detect and manage or refer obstetric complications that can arise without forewarning (Ronsman *et al*., 2006). Focus is now shifting to expanding the lower levels of care which are staffed with nurses and midwives who can provide basic obstetric care. This represents the base of a service pyramid in which most women deliver at first-level clinics and those with high-risk pregnancies are referred to higher level hospitals (Kruk *et al*., 2013).

Bypassing proximal lower levels of care for childbirth in higher level facilities has significant implications for maternal health service delivery and human resources in a health organization (Salazar *et al*., 2016). It has been linked with extra expenses imposed on the woman and her family, as well as the ineffective use the resources within the health system(Salazar *et al*., 2016). In Nepal, bypassing proximal health facilities and traveling

to relatively distant place/ secondary care unit to receive the same service contributes to poor service provision and maternal death (Karkee *et al.*, 2014). Perception of low quality of care by mothers seeking childbirth services is stated as a major determinant factor for non utilization or bypassing of health services in primary health care units. Women alleged that unlike hospitals, health centers typically cannot offer emergency operation and are deficient in competent midwives and doctors (Karkee *et al*., 2014).

In Sub-Saharan Africa, studies done in Mozambique by Yao and Agadjanian, (2018) and in Tanzania by Kruk *et al* (2014) found out that bypassing lower level facilities by women seeking prenatal services occurs in pursuit for service quality. Bypassing behavior among women revealed that their behavior is tied to their understanding of various measures of quality at the facilities that they visit and bypass (Leonard *et al*., 2002). Atkinson*et al* (1999) also found that in urban Zambia, people sought care at hospital facilities, not for alleged improved quality services, but for the reason that they thought they were inexpensive and better stocked with drugs.

The Kenyan government is the core provider and financer of healthcare delivery. It has an established four-tier healthcare delivery system comprising the community services, primary health facilities, county referral facilities and national referral facilities, organized as a two way referral connection (Kenya Health Sector Referral Implementation Guidelines 2014).Several strategies have been developed by the Kenyan government with the aim of improving maternal and neonatal health. For instance, in 2013, the government developed a guideline that aimed at providing maternal health services at no cost, abolishing delivery fees in all government health facilities (Gitobu *et al*., 2018). Currently, women access childbirth services and antenatal care in all public facilities under Linda Mama program up to 6 months post delivery, after which they have to be enrolled in the National Hospital Insurance Fund (NHIF). Additionally, Beyond Zero

Campaign is another safe motherhood strategy that was launched in January2014. The campaign is a program that provides a fully equipped ambulance to each of the 47 county governments so as to conduct outreaches to the inaccessible communities (WHO, 2018). It aims at providing ambulatory maternal and neonatal community outreaches and allows skilled birth attendants (SBAs) to conduct deliveries in rural communities in conjunction with County Governments (Gitobu *et al.*, 2018). Devolution of the health system has also focused on addressing the accessibility and efficiency in the provision of health services with accelerated expansion of primary health care facilities (Oketch & Lelegwe, 2016). The health care delivery system has thus addressed one of the most important barriers in the access to the health system, which in this case is the availability of essential services within a reasonable distance. However, the inadequate utilization of services at the majority of the marginal public amenities has continued, while at the same time patients incur avoidable costs due to self-referral to far-away and more costly centers (Turin, 2010).

According to Uasin Gishu County annual performance for the year 2017/2018, a total of 34,896 deliveries were done across the county public health facilities. Out of these, 13,268 (38%) deliveries were in the Moi Teaching and Referral Hospital (MTRH), which is a tertiary facility (DHIS2, 2018). Two hundred and seventy mothers who delivered at MTRH in the same period had formal referral letters from other health facilities while 12, 998 (98%) had not sought childbirth services in any other health facility at the lower tier facilities. This is regardless of the accessibility of these services at the county health facilities. This study therefore aims to examine the determinants of bypassing county public health facilities among women seeking child birth services at the MTRH.

1.3 Statement of the problem

Existing studies have documented bypassing of health facilities in the developed countries (Moscelli *et al.,* 2016; Sanders *et al.*,2015).However, little is known with regard to whether, how and why health care users bypass their nearby health facilities in the developing countries, especially resource-constrained settings, such as those of Sub-Saharan Africa. It has-been observed that it is in these regions that inefficient utilization of the available health facilities greatly influences the effectiveness of public health services that are often already strained by persistent shortages of drugs and supplies as well as qualified staff (Salazar *et al*., 2016). In the developing countries, it remains crucial that health care resources that are in existence are well utilized and the bypassing of facilities for essential health services is avoided as much as possible (Salazar *et al.*,2016).

At the Moi Teaching and Referral Hospital, majority of the women seeking childbirth services self-refer to the facility. In the year 2017/2018,only 2% of the women that delivered at the facility were formally referred from other health facilities, suggesting that majority of the women did not go through their nearby health care facilities (DHIS2).Bypassing their proximal facilities increases the service cost for couples including travel time and cost of transportation for accessing the tertiary referral hospital. There is also an observed concurrent congestion at MTRH which could prejudice the capability of the health facility to provide opportune, competent, and quality care to women deserving higher level of care. The problem of women seeking childbirth services at the tertiary facility without formal referral is well observed in MTRH but it has not been formally studied. Therefore, this study aims at examining the determinants of bypassing county public health facilities among women seeking childbirth services at MTRH.

1.4 Main Objective

To assess the determinants of bypassing county public health facilities among women seeking childbirth services at MTRH.

1.5 Specific Objectives

1. To determine the extent of bypassing county health facilities among women seeking childbirth services at MTRH.
2. To assess the individual characteristics associated with bypassing county health facilities among women seeking childbirth services at MTRH.
3. To examine the health facility characteristics associated with bypassing county health facilities among women seeking childbirth services at MTRH.

1.6 Research Question

1. What is the extent of bypassing county health facilities among women seeking childbirth services at MTRH?
2. What are the individual characteristics associated with bypassing county health facilities among women seeking childbirth services at MTRH?
3. What are the health facility characteristics associated with bypassing county health facilities among women seeking childbirth services at MTRH?

1.7 Justification

Bypassing local health facilities for childbirth has significant implications for service delivery and human resources in a health system (Salazar *et al*., 2016). In the last decade, a variety of national programs in Kenya have been developed advocating for skilled birth attendance resulting in a vertical rise in facility based births (KDHS, 2014). Nevertheless, the degree of bypassing in the context of this steep rise in skilled birth attendance has not been officially documented in Kenya. This is in spite of its significant consequences for

the delivery of maternal and neonatal healthcare services. In view of this, determining the extent of bypassing county health facilities and its determinants, the findings of this study will aid policy makers on the need for an operational referral system. Effective referral systems ensure that health services are accessible to all people through the hierarchal continuity of care across the levels of care. A functional referral system will also help in health care planning achievable through performance monitoring of the health system (Kenya Health Sector Referral Implementation Guidelines, 2014). Findings from this study is also anticipated to inform both the national and county health care planners on the current utilization of county health facilities which can be useful in planning for efficient devolved health service provision in line with the new constitution at county level (Murkomen, 2012).

1.8 Study Limitations

The current study had potential limitations. The major limitation was that the research focused on the concept of bypassing health facilities from the perspective of the women only without the county health care workers point of view. Secondly, there was a likelihood of recall bias where women were asked about their experience with the previous delivery; however, a good number of the variables were socio-demographic characteristics of the study respondents thus reducing the probability of the bias in the study. Finally, other possible predictors were not incorporated in the study such as the observed quality of care at the county public health facilities.

1.9 Conceptual Framework

The conceptual framework that was used in the current study was adapted from Thaddeus and Maine (1994) and Gabrysch and Campbell (2009). This framework states the four factors (socio demographic, perceived benefit/need, physical and economic accessibility) that influence maternal choice of childbirth facility.

Socio demographic factors

These are composed of the maternal age, parity, educational level, occupation of the mother and spouse. The age of the mother is seen as a proxy for accumulated knowledge especially on the access and utilization of childbirth services. A woman's level of education reflects increased knowledge and understanding of available health services as well as enhanced receptiveness to health-related information (Gabrysch and Campbell (2009). Spouse's occupation and level of education also enables them to further open up toward up to date medicine and knowledgeable on the benefits of health facility choice in relation to childbirth (Thaddeus and Maine, 1994).

Perceived benefit/need

Perceived benefit/need are the factors that impact on the awareness of how health care facility that women attend would benefit them and the unborn baby. The general understanding of the complications of childbirth as well the available interventions at the health facility, a mother's past experiences with pregnancy and birth order (Singer *et al.*, 2014) influences the women's choice of birthing facility. Antenatal utilization is also perceived to provide opportunities for health workers to encourage women on a specific health facility for delivery or inform women on the status of their pregnancy, which in turn informs their choice of facility for childbirth (Mustafa & Mukhtar, 2015).

Economic and Physical Accessibility of Health Facility

Distance between potential clients and their nearest health facility plays a significant role in the quest for health care. The impact of distance is stronger when it is in combination with lack of transportation and impassible roads (Musoke *et al.*, 2014). Therefore, mothers tend to seek care at facilities that can easily be accessed. Utilization of a health facility is also directly proportional to economic status. Mothers and spouses with high economic status will access higher level facilities irrespective of distance covered (Owoseni *et al.*, 2014).

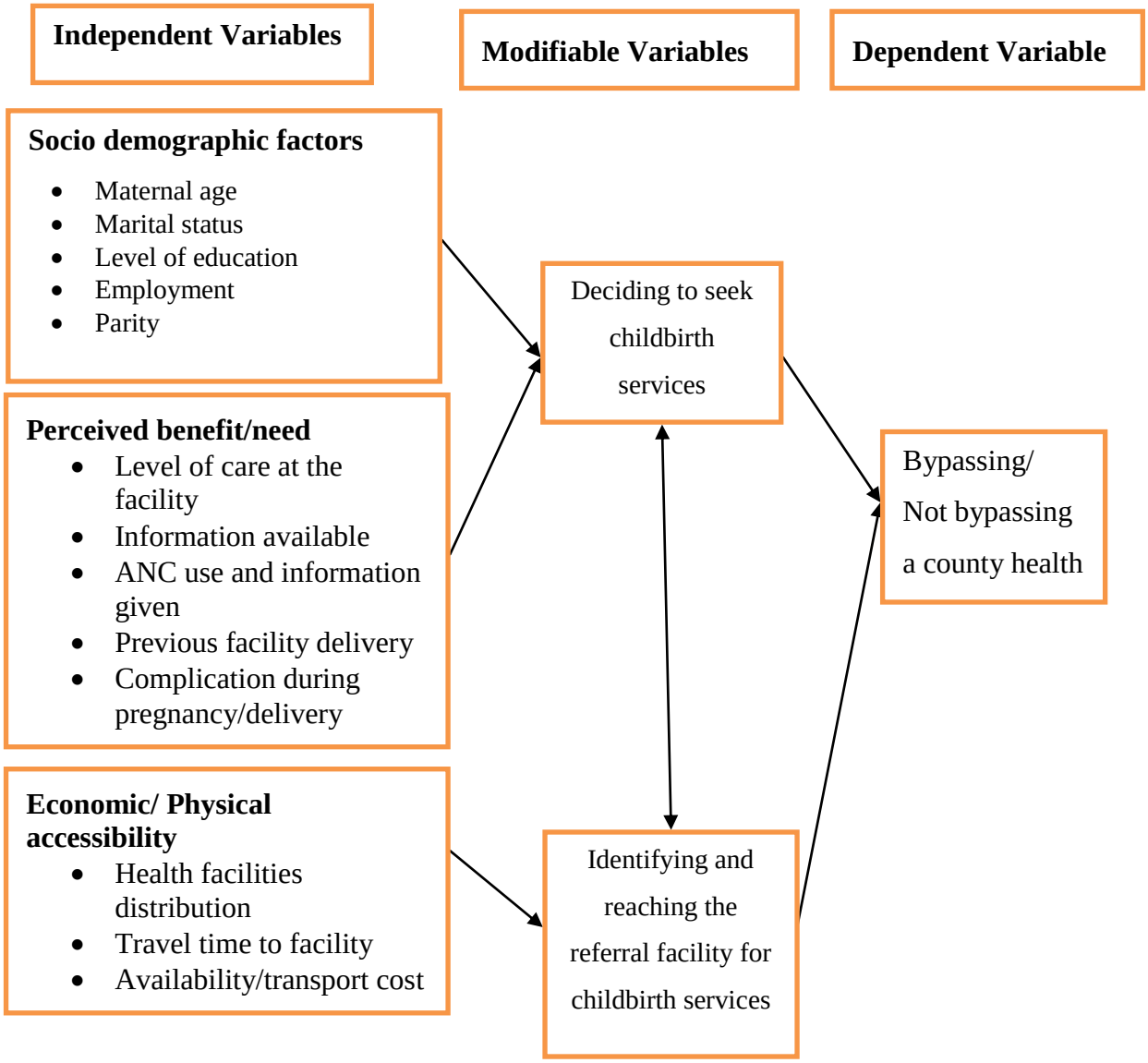

Figure 1. 1: Conceptual framework. (Adapted from Thaddeus & Maine 1994).

Operationalization of variables

By-passer: A self-referred pregnant woman who directly comes from home to Moi Teaching and Referral Hospital for childbirth service which could be provided in the nearest health facility.

Childbirth services: The process that marks the end of pregnancy whereby a baby leaves her mother's uterus either via the natural birth process (vaginal delivery) or via cesarean section

Delivery: This refers to the process of giving birth in a health facility

Maternal Morbidity: Refers to the complications in a woman that are associated with her pregnancy, labour or delivery. Includes obstetric fistula, anemia, infertility, damaged pelvic structures, and depression

Maternal Mortality: Demise of a mother while pregnant or within 42 days after termination of pregnancy, from any cause associated with pregnancy or its management.

Non-by passer: A pregnant woman that comes to MTRH with a referral letter from their nearest health facility for childbirth.

Perception of quality of care: How women visiting MTRH perceive the kind of childbirth services received in terms of access to qualified health personnel, patient privacy, availability of social amenities and the necessary drugs

Quality of care: That degree in which maternal health care services offered in a health facility to women improve desired health outcome of a normal delivery.

Referral System: The practice through which a primary health care provider authorizes a patient to see a specialist or move to higher level of care to receive specialized care.

Referral: The transfer of a patient from one physician/hospital to another for ongoing management of a specific health problem.

Self-referral: Presenting to the hospital without being formally referred from another health facility.

CHAPTER TWO

LITERATURE REVIEW

2.0 Overview

This chapter provides an in-depth appraisal of the literature associated with the research topic. It reviews the literature on health care referral system and the determinants of bypassing primary health facilities.

2.1 Health care referral system

The right to the highest attainable standard of health is an essential human right (WHO, 2005). Central to this human right that is in a hierarchical health system is the existence of a well-functioning referral system in the delivery of health care that allows for continuity of care across different tiers of care (Kamau *et al*., 2017). Majority of the health systems in the world are hierarchical, with the lowest being primary care, then secondary care facilities, and the highest level of care consisting of tertiary level facilities that offer highly specialized services. However, a good number of developing countries have weak health referral systems across the various levels of care which in turn affects the general performance of the health system contributing to negative health outcomes (Kamau *et al*., 2017). A functioning referral system is of significant importance in pregnancy and childbirth care where it provides access to specialized obstetric care and for backing up antenatal and delivery care at first line facilities. Referral patterns, as reported in the developing countries demonstrate that the authentic use of a referral system for obstetric care is inversely linked to a professional needs consideration (Chenge &Askew, 2015).

The functioning of a referral system depends on several factors such as the presence of significant economic barriers for patients' self-referral; the extent of differentiations in the medico-technical performance of the health facilities at the various levels of care; the efficiency of the operational arrangements of the referral system; and the willingness of

the population to utilize primary health care facilities as a point of entry into the health system (Magoro, 2015). In ideal situations, patients should be managed at the appropriate level in order to improve access to health services and to make best use of available human resources. When the pyramid system is ignored, patients are treated at higher costs for no apparent reason and at the same time there will be congestion at the higher level health facilities while lower level facilities remain underused (Magoro, 2015).

Effective as well as timely maternal referral has been found to be important in obstetric emergencies since most pregnancy complications are unpredictable (Pembe *et al.*, 2010). Functional referral system helps prevent maternal and perinatal deaths by ensuring that pregnant women access appropriate health services when complications arise. A successful maternity referral system has been identified to include: a referral strategy that is well conversant with the population needs and the capabilities of the health system; a sufficiently resourced referral centre; teamwork between the different referral levels; formal communication and provision of timely transport; agreed health facility-specific protocols for referring and receiving facility; inexpensive service costs; the aptitude to supervise efficiency as well as policy support (Murray and Pearson, 2006).

2.2 Referral policy framework: Kenya Health Policy (KHP) 2012-2030

The overall goal of the Kenya Health Policy (KHP) 2012–2030 is to serve as a guide in the attainment of the highest possible standard of health that is responds to the population needs by advocating for universal coverage of crucial services. The strategic objectives of the policy include the provision of essential health care by making it affordable, impartial, available, and receptive to client desires. (Kenya Health Sector Referral Strategy, 2014-2018). The Kenya Health Policy has recognized the need to reinforce the referral system as a way of improving effectiveness in the health system and in order to improve patient outcomes (Kamau *et al.*, 2017). Among the critical investment priorities for the referral

system as outlined in Kenya Health Sector Strategic Plan 2012–2018 include an update in the referral tools and guidelines at all levels of care, orientation of the management teams on their roles and functions in the referral system, and tools for referral allowances for the ease of movement of the referral experts as well as fuel for travel (Kamau *et al*., 2017). The strategic plan therefore provides a guide for the sector in building an efficient system that is able to respond to the population's needs.

The government of Kenya through the Ministry of Health has also identified the following elements that contribute to effective referral system. These include accessibility, availability and affordability of the health care services; coordination among facilities and between providers; relationship including supportive regulation between higher and lower tiers of care; effective communication and transport arrangements and an adequate feedback mechanism (WHO, GoK, 2012).A study by Magoro (2015) on patient referral system showed low referral rates at secondary and tertiary hospitals, as well as at primary health facilities. Frequent referrals were found to flow directly from primary facilities to the tertiary hospitals, bypassing county and sub county hospitals. The study also documented a lack of a register of referred patients at the primary facilities.

The current Kenya health referral system is weak, just as it has been documented in other emerging countries. It has been reported to have an effect on the overall performance of the health system, contributing to negative health outcomes (Kamau *et al*., 2017). An improved referral between essential and comprehensive obstetric care facilities is thus significant in improving the survival likelihoods of the mother and the baby.

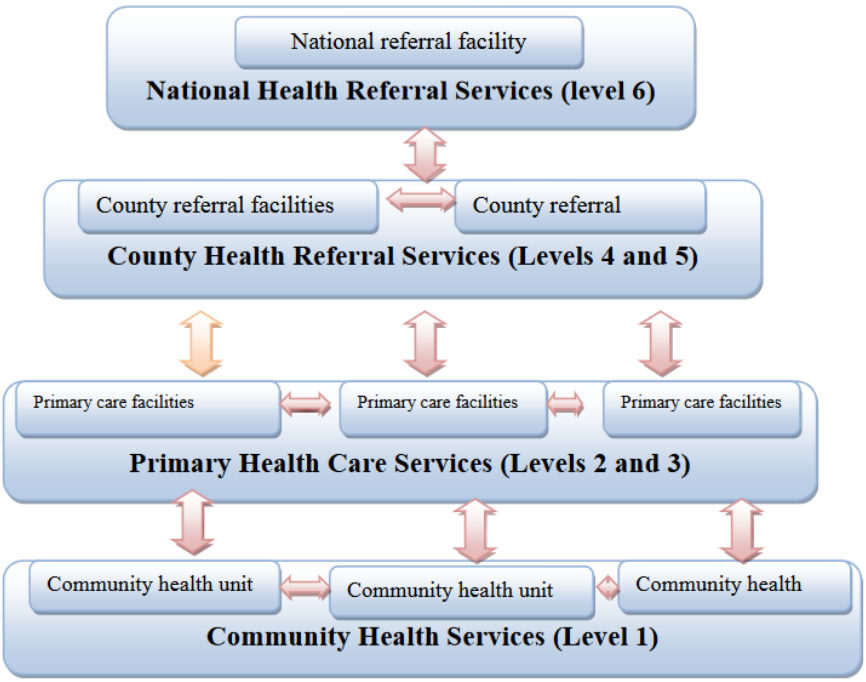

Figure 2. 1: Referral linkage between different levels and tiers of care (KHSRIs 2014)

2.3 Bypassing health facilities

Bypassing health facilities for childbirth services occurs when women choose to deliver at a facility that is not their nearest. It is associated with important implications for maternal health service delivery and human resources within a health system (Salazaar *et al.*, 2016).Often, it indicates a lack of confidence in the care provided by the facility nearest to the mother, which implies a level of dysfunctionality that the health system needs to address. Substantial logistical challenges and higher costs mainly driven by expenses associated with transportation has been linked with bypassing health facilities (Kruk *et al.*, 2013). Previous studies have shown that bypassers reported having borrowed money to finance delivery which is a measure of financial hardship that can lead to impoverishment (Kruk *et al.*, 2009). This highlights the fact that access to higher-level facilities is inequitable, with the wealthiest women more likely to obtain secondary services.

2.4 Magnitude of bypassing primary care units for child birth

Bypassing nearby health facilities for childbirth has been associated with significant implications for maternal service delivery and the utilization of human resources within a health system (Salazar *et al*., 2016). It is related with added expenses imposed to the woman and her family, in addition to the ineffective use of health system resources. Quite often, bypassing indicates lack of confidence in the care offered at the facility that is nearby to the mother. This implies a level of dysfunctionality at the lower level facilities that should be critically addressed(Salazar *et al*., 2016).

The degree of bypassing has been reported by different studies done globally, particularly the developing countries (Audo *et al*., 2005; Kruk *et al*., 2014). Studies done in Tanzania, Nepal and in Afghanistan showed that, the magnitude of bypassing was 41.8%, 70%and 60% respectively (Kruk *et* al., 2014; Rajendra *et al*., 2013; Koblinsky *et* al., 2016). Bypassing was reported among the women who choose to deliver in a hospital instead of their local primary care facilities that are equipped with basic emergency obstetric care (Kruk *et al*., 2014). In as much as there may have been a number of common determinant factors that push women not to utilize their nearest health facilities, there may have also been variations from place to place and time to time.

2.5 Factors associated with bypassing public health facilities

Women preference for childbirth facility is shaped by a number of determinants particularly in developing countries. Among these are demographic characteristics, perceived benefit and/ or need for maternal care, economic and physical accessibility factors as well as quality of care.

2.5.1 Sociodemographic factors

2.5.1.1 Maternal age

Maternal age istime and again presented as a proxy for accumulated experience in the choice and utilization of health services. Women who are older are more convinced and have an influence in a family's decision-making. They are also more likely to be informed by health care providers that with advancing age, there is a possibility of developing pregnancy related complications (Kante, 2016). A study by Alghanim (2011) showed that young respondents and those with higher education level tend to bypass primary health facilities. In Nepal, majority of the women delivering at the hospital bypassed their proximal birthing facilities. Older age (OR: 2.222; 95 % CI) and first birth (OR: 2.032; 95 % CI) were associated with high tendency of bypassing (Karkee *et al.,* 2015). A population based study by Kruk and colleagues (2009) on bypassing primary facilities in Tanzania showed that women who were aged above 35 years were two times more likely to have bypassed nearby facilities (p = 0.01) and having one or no living child (p = 0.03).Maternal age therefore is consistent with parity, and, in other scenarios, with level of education. In addition, age is also associated with marital status, socioeconomic status andthe power to make informed decisions (Kruk, 2014). Liu *et al* (2008) in his study found out that the factors associated with bypassing health facilities were maternal age, level of education, marital status, mother's satisfaction with the proximal health facility, history of admission to a hospital in the past 12 months, the size of the hospital as well as the competence of primary care health providers.

2.5.1.2 Marital status

Marital status plays a significant role in the choice of delivery facility. This is perhaps through its impact on female autonomy and status or through the availability of financial resources (Gabrysch and Campbell, 2009). Women who are single, divorced or widowed

may be perceived to be poorer but they enjoy their independence as compared to those who are married (Gabrysch and Campbell, 2009). Adolescent mothers may perhaps be taken care of by their close relatives who could serve to promote delivery in a health facility of their choice, especially for a first time delivery. In addition, mothers who are single may be stigmatized and would rather deliver at home or in facilities that are located far from their places of residence since they have anticipation for a negative health provider interaction(Gabrysch and Campbell, 2009),

2.5.1.3 Maternal/ spouse level of education

Education level remains one of the main determining factors of health and health care utilization (Bayou, 2014). According to Long and colleagues (2010), low levels of education as well as lack of female empowerment impede women from seeking maternal. Literature has shown that women with secondary level of education have higher likelihood of accessing a variety of ANC services and are capable of choosing better care in comparison to women who have lower levels no education at all (Adjiwanou & LeGrand, 2013). A mother's level of education has been positively associated with access and utilization of modern antenatal care. Likewise, spouse's level of education provides the opportunity for a couple to be more receptive for contemporary medicine and to be conscious of the benefits of health care (Bayou, 2014). According to Gabrysch and Cambell (2009), a husband's level education is associated with skilled delivery attendance during birth for his spouse.

Multiple explanations exist that explain the possible pathways that could elucidate the reasons why maternal education is over and again strongly associated with all types of health behavior (Gabrysch and Campbell, 2009). Among them are an increase in knowledge and awareness of the available health services, higher receptiveness to new health-related information, ability to access financial resources and health care insurance,

improved communication with the spouse, more decision-making power and improved self-worth and self-confidence (Gabrysch and Campbell, 2009).

2.5.1.4 Employment status

A woman's employment status has been documented to increase their empowerment and bargaining power in the allocation of resources at household level (Bayou, 2014). Mahapatro (2012) argues that it gives women more bargaining power which helps them aware of their right to health care. Employment status has been documented in the literature as one of the most significant determinants of health outcomes, especially in the context of the African region (Edwards, 2016). Generally, there is great focus on the association between employment status and health. Being employed has been linked with an increase in both physical and mental health, in addition to having an improvement in the quality of life (Hosseinpoor *et al.,* 2012), at the same time being unemployed has been related with a reduction in fertility and infant low birth weight (Lindo, 2011). Probable expounding reasons for these acknowledged outcomes are that unemployment is frequently accompanied by a loss of financial, which in turn can propagate poor health and allay the likelihood of acquiring further employment (Edwards, 2016).

2.5.1.5 Parity

Giving birth for the first child has been known to be more complicated as the woman has no previous experience of childbirth. In Tanzania, Kruk *et al* (2014) reported that the probability of bypassing primary health facilities was higher among primigravida women (OR: 3.70 (CI 1.71, 8.01). In most instances, a high value is placed on the first time pregnancy and in majority of the settings, the family of the first time mother assists her in the choice of the birthing facility (Gabrysch and Campbell, 2009).In addition, health workers may advocate for higher level delivery for first time mothers. On the contrary, women of higher parity have recourse to their previous maternity experiences and may

not be obligated to seek specialized care especially if the previous deliveries were uneventful. In addition to that, women with a number of young children may encounter a challenge in attending distant health facilities for childbirth due to the need to arrange child care (Gabrysch and Campbell, 2009).

2.5.2 Perceived Benefit

According to Gabrysch and Campbell (2009), the perception of benefit comprises factors that impact on the awareness of how health facility delivery with skilled attendance would be of benefit to the mother and her newborn baby as well as how huge the need for such care is. The health benefit perception is shaped by a number of factors including overall understanding of the dangers of childbirth and the possible interventions that exist at the health facilities, Maternal previous pregnancy and childbirth experiences, as well as the risk assessment of their current pregnancy. These factors are believed to primarily have an impact in the choice of a birthing facility (Gabrysch and Campbell, 2009).

2.5.2.1 Perceived severity of illness

Studies from developing countries have highlighted that pregnant women and their families often avoid seeking childbirth services at their nearest obstetric care facility (Sabde *et al*., 2018). A review of literature showed that 44% of the women delivering in a hospital in Tanzania and 70% of the pregnant women seeking hospital childbirth in Nepal bypassed their proximal health facilities for childbirth (Kruk *et al.*, 2009 and Karkee *et al.*, 2015). The extent of bypassing varies significantly in different settings. Alghanim (2011) reported that the respondents who acknowledged as having poor health status or in relentless pain or having history of admission in a hospital in the preceding 12 months had a higher likelihood of bypassing primary health care providers. Women who have access to maternal health information through media have an added advantage of being

knowledgeable in terms of pregnancy related complications as well as the available delivery services in the various health facilities.

2.5.2.2 Information available

Information regarding the functionality of a health facility influences women's choice of birthing facilities. Sanders *et al* (2015) and Moscelli and colleagues (2016) examined various individual and facility specific characteristics and their interactions that influence bypassing. Among the facility characteristics that have been significantly related to bypassing health facilities are the hospital size, quality of service, cost of care, and facility ownership (public or private), among others (Salazar *et al.*, 2016). It has been documented that larger hospitals that offer a variety of services are usually more attractive to clients as compared to facilities that are of limited size (Roh and Moon, 2015; Escarce and Kapur, 2009). Women have also been found to prefer private facilities over public hospitals (Roh & Moon, 2015). In England, patients favored a hospital with minimal waiting time or a facility that they are aware that it offers better quality care however far it is located (Moscelli *et al.*, 2016). In the low and middle income countries, information about the quality of care has been reported to be an important determinant of health facility bypassing despite the existence of other factors in India (Salazar *et al*, 2016) and Tanzania (kruk *et al.*, 2014).

2.5.2.3 Antenatal care use

Dlakavu (2012), in his study documented that self-referred women at a hospital in South Africa were less likely to have attended any facility for antenatal care. The information that women receive during antenatal visit include information about facility that a woman can go to give birth and therefore it is likely that these women visiting the hospital were not aware of the facility to visit when labour began (Magoro, 2015). The nonattendance of antenatal care, therefore, is likely to contribute to self-referral, with the higher level

hospital being the easiest selection for women did not receive guidance on where to deliver (Magoro, 2015).

A review of literature also showed that women who reported having at least one antenatal visit with a skilled provider had a higher likelihood of giving birth with a skilled attendant than those who did not (Tappis *et al*., 2016). The probability of antenatal care attendance in the study was 84% for educated women as compared to those without education. However, this study did not show any direct association between facility specific characteristics and attendance by a skilled birth attendant although it provided insights into why studies assuming that women seek out care at the local primary care facility may lead to false impression of care-seeking behaviours (Tappis *et al.*, 2016).

2.5.2.4 Previous facility delivery

Gabrysch and Campbell (2009) documented that women who have a history of seeking childbirth services at a particular health facility are more familiar with the facility setting, making them more likely to visit the facility if the services were satisfactory. In addition, the majority of the determinants, specifically those that are likely to be constant such education, place of residence and beliefs, that determined a previous place of delivery, is more likely to have the same impact. Even quite for ANC, any ascertained association between previous and later facility delivery use is probably going to be baffled by accessibility of and access to services, perspective towards health services, previous complications, data regarding gestation risks and numerous alternative factors (Gabrysch & Campbell, 2009). Naturally, similar determinants that influenced previous utilization of a facility seemingly influence the current use. Qualitative studies indicate pregnant women tend to deliver with the same provider if a previous delivery went well and have a tendency to alter if they are disgruntled (Gabrysch and Campbell 2009).

2.5.2.5 Complications during pregnancy/delivery

Pregnancies are seldom without any complications. The complications that women experienced through the previous deliveries or a demise of her newborn can make a woman conscious of the dangers of childbirth and the benefits of specialized interventions, making them utilize skilled attendants for subsequent deliveries (Gabrysch and Campbell 2009).In addition to that, women with explicit need for specialist interventions from a previous delivery history, e.g. a Caesarian section, are encouraged by health workers to seek out specialist care for subsequent deliveries due to an increased risk for uterine rupture (Gabrysch and Campbell 2009). A study carried out in Ethiopia reported that having pregnancy and childbirth related complications, use of antenatal care, having a lower birth order and an educated partner are significant predictors of utilization of skilled delivery service. Women who reported an experience with a pregnancy or childbirth related complication was likely to choose a facility that is staffed with competent health care providers (Fissehae*t al.,* 2017).

Gabrysch and Campbell (2009) stated that another likely pathway is that complications that the women experienced during the index pregnancy may inform women's choice to seek antenatal care during which the health care providers may then advocate for a higher level facility delivery. Lastly, women may attempt a home delivery which in turn might complicate. This often impacts directly on the women and their families' choice to seek professional care, however much the initial intention was to deliver at home. On the other hand, a precipitate labour may mean a woman with an intention to deliver in a health facility may end up delivering at home or on the way to the hospital (Gabrysch and Campbell 2009).

2.5.2.6 Level of care at facility

Health system factors can also influence the access and utilization of obstetric care. These factors include a respectful provider attitude, competency, and availability of drugs and medical equipment (Kruk *et al.,* 2009). A culturally inappropriate care, disrespectful and inhumane services as well as a lack of emotional support, can discourage women from accessing and utilization of obstetric care (Behruzi *et al.,* 2010). On the contrary, an affirmative client perception of the health care provider skills can enhance use of delivery services at a health facility (Duong *et al.,* 2004 and Kruk *et al.,* 2010). Furthermore, emotional support in the form of comfort, assurance and praise during childbirth is significantly advantageous (Behruzi*et al.*, 2010).

Kahabuka*et al*., (2011) in their study showed that 59% of the children caretakers did not make use of their closer primary health care facilities during their child's sickness incident. The reasons for bypassing that were cited include: non-availability of drugs (15.5%), health facility being closed (10.2%), lack of diagnostic facilities (42.2%), lack of skilled health workers (3.4%) and poor services (9.7%). With decreasing travel time to the district hospital, short disease duration and the low perception of disease severity, there was significant increase in the frequency of bypassing (Kahabuka *et al*., 2011). The absence of quality services at primary health care facilities were related with delays in accessing proper care and how the experiences of insufficient care caused health care users to lose confidence in them (Kahabuka*et al*., 2011).

Audo *et al* (2006) in their study on bypassing facilities for antenatal care, immunizations and childhood illness reported that between 46.3% and 59.5% of mothers in a rural district had bypassed their lowest level hospitals in preference for district or provincial hospitals.

Among the commonly cited reasons for bypassing werelack of drugs and supplies (17%), poor quality of care (21%) and poor laboratory services (12%).

Salazar *et al.*,(2016) in their Indian study reported that out that four in every ten rural women bypassed health facilities for childbirth. Their findings showed that this was primarily determined by the functional status of the facilities irrespectiveof whether they were public or private health facilities. The quest for quality maternal and child health care services in facilities far from a mother's residential place has also been reported in the low and middle income countries, particularly in SSA. The main reason for this observation is the experienced or perceived quality of care in the health facilitiesdespite the client's demographic status or geographical distance to the health facility (Kante*et al.,* 2016; Kruk *et al.,* 2014 and Kahabuka*et al.,* 2011).

2.5.3 Physical/ Economic Accessibility

Geographic location affects health care seeking behavior. According to Edwards (2016), the geographic location refers to whether a household is located in the rural or urban setting and at the same time it acknowledges that those in urban areas are of higher socioeconomic status as compared to those in the rural areas. In the choice of health care facility, the geographical access is of primary concern, particularly for the health care users who have restricted such as the elderly or those living in remote areas with poor transport network (Combier *et al.*, 2014). A study in the United States found out that with a decrease in the distance travelled by a patient to a health facility, the likelihood of its utilization increases, hence reducing the possibility of bypassing (Escarce and Kapur, 2009). In SSA, several studies have documented distance to a facility has a significant role in health care utilization (Yao *et al.*, 2012; Asewe *et al.,* 2011; Okoronkwo *et al.*, 2014).

2.5.4 Perceived quality of care

In the quest for better quality health care in terms of provider competency and the availability of prescribed drugs and equipment, the health care users tend to bypass primary health care facilities that have limited human and material resources (Rajani, 2016). Several studies have shown that a considerable number of women have a tendency to bypass their proximal health facilities to access childbirth services in a hospital that is further from their homes, particularly facilities that offer quality maternal care (Kahabuka *et al.*, 2011; Kruk *et al*., 2014; Karkee *et al.*, 2015). Women's negative perception about quality of care, ease of access and availability of basic maternal services has been documented as frequent reasons for bypassing (Alghanim, 2011). Rajani (2016) in his study found out that the main reasons for bypassing health facilities were primarily lack ofblood test facilities, lack of operating theatres and investigative equipment, non availability of drugs lack as well as skilled service provider the primary health facilities.

Low *et al*., (2011) in their study reported that bypassing of the primary health care facilities and directly accessing higher level hospitals is a frequent observation, particularly for a good number of women seeking maternal and neonatal services. The same study documented that more than half of women attended to at the hospital were self-referrals, while actual referrals were 30%. Among the factors contributing to the women preference of obstetric care according to Low *et* al (2011), were the perceived quality of maternal care, distance to the facility, cost of care, the health provider's attitude and respect for women's needs, the perception of the cause of complications as well as a woman's cultural preferences.

A study by Wolkite and colleagues (2015) on magnitude and factors influencing self-referral in Western Ethiopia, found out that out of the total study participants, 82% had self referred, out of which females accounted for 63%. Ninety three percent (93%) of the

self-referred bypassed the lower levels facilities regardless of the understanding of the services offered at facilities that are closer to them. Among the leading determinants for self referral according to Wolkite *et al*., (2015) were the perception that the facilities lack or offer poor quality services, poor quality of laboratory tests and non-availability of drugs as well as a limited information in relation to the referral linkage in the health service system.

A higher quality of service as well as less hospital waiting times have been documented as the main predictors of the choice of a health facility in spite of distance to the facility (Moscelli *et al.*,2016). The choice of a facility according to Gutacker and colleagues, (2016) depends on the type of hospital quality, reputation of the facility and the available quality information. Patients have been found to disregard the public relative indicators that may influence their choice of a hospital (Ferrua *et al.*,2016). The same study reported that a patient's choice of a health facility is also influenced by various aspects of hospital service quality criterion, for instance, the good hospital qualities and its usefulness for other purposes besides maternal care. Similar sentiments are echoed by Dixon *et al.*, (2010) who noted that the most significant factors that are considered by the patients in their choice of a facility are the quality of health care offered and the facility cleanliness.

Previous facility experience in terms of quality of care received influences the choice between health facilities (Hunter *et al.*,2013. The same study demonstrated that other factors that influence choice of facilities are the accessibility of the service and the perceived proficiency of healthpractitioners. Therefore, several studies have documented the role that is played by quality of service in the choice of a health facility.

2.6 Summary of the literature and knowledge gap

According to the reviewed literature, the determinants that are most constantly linked with access and utilization of a health facility for childbirth are higher maternal age, higher level of maternal education, primiparity and higher family financial resources(Gabrysch and Campbell, 2009).History of previous facility antenatal and delivery use has also been documented to be predictive of access and utilization for the index delivery. The need for a higher level service is also determined by pregnancy related complications and as such is significantly related with high levels of utilization of facility for specialized care. Perceived quality of health services has also been recognized as a significant determinant of care-seeking behavior among women by many studies (Gabrysch and Campbell, 2009). Women tend to utilize health facilities that offer quality maternal and neonatal care.

Considering the reviewed literature, an explicit gap emerges as there is definitive lack of a study on the magnitude of bypassing public health facilities and accessing a tertiary facility for childbirth in Kenya. The current study therefore, attempts to address this gap by seeking to establish the magnitude and its determinants in a Kenyan setting and thus make a contribution to the literature on this area of study. In addition, it was noted in literature that there exists a gap in the role that the facility characteristics plays in the choice of a birthing facility. A number of ways exists that influence the likelihood of a woman giving birth in a particular facility and these include attributes such as the nature of the community whether rural or urban setting as well as community attitudes and norms regarding childbirth as well as the features of surrounding health care facilities in terms of ease of access and quality of care (Gabrysch and Campbell, 2009). This study thus seeks to elaborate more on the key determinants in the utilization of a health facility for childbirth.

CHAPTER THREE

METHODOLOGY

3.0 Overview

The chapter presents the methodology that will guide the study. This includes study design, study setting, study population, sample size determination and the sampling procedure. It also presents data collection approach and methods, data collection instruments, data analysis and ethical considerations.

3.1 Study Design

This was a descriptive analytical cross-sectional study using quantitative approach for data collection.

3.2 Study Area

The study was carried out in the postnatal ward of the Moi Teaching and Referral Hospital (M.T.R.H) which is in Uasin Gishu County. M.T.R.H is one of the national referral hospitals in Kenya besides Kenyatta National Hospital. It's situated in Eldoret town, western Kenya. The catchment population is estimated to be 15 million serving residents of entire western region of Kenya. It also receives patients from southern Sudan and eastern Uganda. The Riley Mother and Baby Hospital in M.T.R.H serves as a specialized unit for maternal and newborn cases. It is equipped with modern delivery beds, spacious and it houses a mother's hostel for those with children admitted at the nursery. It has a bed capacity of 112 beds with 18 bed labour unit. The average bed occupancy is 134. The labour ward is staffed with 49 nurses working at a ratio of 1: 4 clients.

Uasin Gishu County has a sum of 170 health facilities that range from levels 2 (Community level) to level 6 (tertiary level). At the peak of the health system is MTRH

which is a tertiary level facility that is designed to offer specialized cases referred from lower level facilities. Uasin Gishu County has one hundred and eleven (111) county public health facilities besides M.T.R.H being served by a total of 924 health workers. The doctor: population ratio at the county is 1: 10,034 whereas that of nurse: patient ratio is 1: 2,331, reflecting a deficiency of health care staff in the county. The mean distance to a health facility in the county is seven (7) kilometers which is on a higher side than the targeted of 5km.

3.3 Study Population

The target population was women admitted at the postnatal ward who delivered at MTRH irrespective of the mode of delivery.

3.4 Eligibility Criteria

3.4.1 Inclusion criteria

1. Women admitted at the postnatal ward who delivered at the MTRH were eligible to be included in the study.

3.4.2 Exclusion criteria

1. Women who did not consent to partake in the study.
2. Postnatal women who were very sick or with impaired level of consciousness.

3.5 Sampling Procedure

MTRH was chosen purposively since it represented the highest level of care at the county and is designed to handle specialized care but it continues to manage health conditions that could easily be handled at the county public health care facilities. Simple random sampling technique was used to choose the respondents where every mother meeting the inclusion criteria had an equivalent probability of being selected. The inpatient numbers from delivery records of MTRH was used to select the mothers to be interviewed. The

numbers were selected randomly during the period that the study was carried out until the desired sample size was obtained.

3.6 Sample Size Determination

A single population proportion formula developed by Cochran was used to determine the sample size, considering the following assumptions:

$$n = \frac{Z^2 p q}{e^2}$$

Where:

P = the anticipated proportion of an attribute that is present in the study population (50%)

q =1-p = 0.5,

e = margin of error or degree of precision- absolute precision of 5% will be considered to estimate the margins of error at which the results shall be acceptable

Z = 1.96 (level of significance)

Thus, n $=\frac{(1.96)^2(0.5)(0.5)}{(0.05)^2}$ n =384 women

=384 women

By taking into consideration a non-response rate of ten percent (10%), the sample size was adjusted to 422women.

3.7 Development of Research Instrument

An interviewer administered questionnaire was developed and used to collect data. The questionnaire was adapted and modified from Kenya Demographic Health survey (KDHS), 2014 and modified to address the study objectives. The outcome variable was bypassing county primary health facilities while the independent variables were sociodemographic factors (e.g. age, maternal and spouse education level, marital status, parity and occupation); perceived benefit/need (level of care at facility, information

available, ANC use, previous facility delivery, birth order, complication during pregnancy); Physical accessibility (geographical distance, transport) and perceived quality of maternal care. This instrument was deemed appropriate as it elicited the determinants of bypassing county health facilities among women seeking childbirth services at MTRH.

3.8 Validity and Reliability

3.8.1 Validity

Questionnaire used to collect data was designed in such a way that it reflected the variables the study sought to measure that isthe outcome and independent variables. Validity was ensured through the appraisal of the instrument by the experts and with the help ofsupervisors. Additional suggestions from IREC reviewers were incorporated in the tool, hence the tool was able to achieve the study objectives.

3.8.2 Reliability of the tool

A pilot study was carriedout at Uasin Gishu county referral hospital prior to actual data collection. With permission from the hospital, the pretest was done to check whether the tool would yield reliable information that would meet the study objectives. The pilot study respondent's data were not included in the results of the main study. Their data only served to inform the researcher whether the tool was reliable in terms of yielding the desired outcome.

3.9 Data collection procedures

An interviewer administered questionnaire was used to collect data. Research assistants were selected basing on their qualification and trained on the aim of the study and the administration of the questionnaires. The selected study participants from the maternity in patient registry were identified in the postnatal wards. The purpose of the study was explained to the study participants after the researcher and the trained research assistants

had introduced themselves. Participants who agreed to participate in the study signed an informed consent form prior to data collection. An interviewer guided questionnaire was used to gather data from the participants. The entire process of data collection was carried out by the principal investigator and the trained research assistants after which the principal investigator reviewed all the questionnaires that were filled on a daily basis in case of any inaccuracies or incomplete responses.

3.10 Data Analysis

Data cleaning and coding was done prior to entering in SPSS software for statistical analysis version 21. Descriptive statistics of frequency were performed. Likert scale variables on respondent's satisfaction levels with health care services were treated as variables with dichotomous responses where 'completely satisfied' or 'very satisfied' and 'satisfied' were considered as' satisfied' while 'neutral', 'dissatisfied' and 'very dissatisfied' were treated as 'not satisfied'. Such a change allowed for the use of bivariate logistic regression analysis and multivariate logistic regression to be applied on independent and dependent variables. Multiple logistic regressions were estimated on the variables to establish the association between the dependent and the independent variables. Results that were statistically significant or borderline ($p < 0.07$) from bivariate analysis were included in multivariate logistic regression model. For this study, *p* value of 0.05 was considered as statistically significant at 95% confidence interval. The strength of association between the dependent (bypassers) and independent variables (individual and health facility factors) was determined by use of odds Ratio (OR) at 95% confidence interval (CI).

3.11 Ethical considerations

Ethical clearance from the Institutional research committee of MMUST, NACOSTI and MTRH was granted prior to data collection. A written informed consent was obtained from the study participants before data collection. Detailed information about the purpose of the study including the objectives of the study and whether there were any risks or benefits in participating in the study were availed to the study participants before the initiation of the study. Respondents were also allowed to make a decision on whether they wanted to take part in the study or not and that they would not be penalized if they chose otherwise.

Ethical principles of research were applied as follows:

Beneficence: This principle ensures that participants are free from harm physically, psychologically, economically and socially. This was minimized by phrasing questions in a non-judgmental mannerandhavingdebriefingsessionsthatallowedparticipantstoaskquestionsafter data collection. All participants in the research were assured of freedomfromexploitation.Participantswereassuredthattheirparticipationwouldnotbeusedagainstthem.Allparticipantsinvolvedintheresearchwereexplained to that there would benoself-benefitwhenoneparticipatesintheresearchandtheywerefreetopull out from the study at anytime in the process of research.

Respectforhumandignity:Allparticipantsintheresearchweretreatedasindependentagents who can make independent decisions.Studyparticipantswerefreetoparticipateornot,freetoaskquestionsandbeanswered,refusetogiveinformationandtheywerefreefromanyformofcoercionatanytime.Allparticipantshadarighttofulldisclosure.They were knowledgeable that participation was voluntary.

Principle of justice: All study participants had the right to just, unbiased treatment and privacy prior to data collection, throughout and after involvement in the study. There was respect for all culture and human diversity. There was no judicial treatment even when one declined to be included in the study. Privacy of the participants was also maintained throughout the study period. To ensure anonymity, no participant name or any form of identifier was included in the questionnaires. Furthermore, the data collected was kept under lock and key in designated cupboards that was only accessible to the researcher and the research assistants.

CHAPTER FOUR

RESULTS

4.0 Overview

This section describes the interpretation and explanation of the study findings conforming to the objectives of the study and the research questions. These results of this study will be compared with findings of similar studies that were done in other settings.

4.1 Socio-demographic characteristics of respondents

Table 4.1below shows socio-demographic characteristics of respondents who were included in the study. Three hundred and ninety nine (399) respondents participated in the study with a response rate of 95%. Of the 399 participants, almost half (49.6%) were aged 25 – 34 years with a mean an overall mean of 28.2 (SD 6.3) ranging from 18 to 44 years. The difference in age groups between the bypass and non-bypass group was statistically significant ($p = 0.007$). The mean age difference was marginally statistically significant ($p = 0.06$) with the non-bypass group being older with an average of 29.3 (SD 5.6) compared to the younger bypass group with a mean age of 27.9 (SD 6.5).

Three-quarters (75.4%) of the respondents were married with a considerable difference among the two groups ($p = 0.03$). Among the single which also included those who were separated, divorced or widows, 84.7% bypassed compared to 74.1% of the married. Further analysis on level of education shows the leading among the three groups being those who attained secondary education (39.9%) distantly followed by those with tertiary education at 31.3%. The difference among the three groups with reference to bypass categories, however, wasn't statistically significant ($p = 0.1$). Conversely, most spouses had tertiary level of education (56.9%) followed by 25.7% with none or primary level of

education. Again, the difference in the spousal level of education among those who bypassed and those who were referred was non-significant ($p = 0.2$).

Although the leading religious affiliation was Christianity (94.4%), the difference for the bypass and non-bypass groups was not statistically significant ($p = 0.3$). More than one-quarter (27.1%) were unemployed with a highly statistically significant difference between the bypass and non bypassers group ($p = 0.0001$). Most of the students (90.5%), the self-employed (83.0%) and the employed (72.4%) had bypassed other health facilities to access MTRH delivery services. Almost half of the respondents (48.1%) earned between KSh. 0 – 5000 and the difference between bypassers and non-bypassers was not statistically significant ($p = 0.1$).

With reference to home county, more than half (59.4%) were from Uasin Gishu County. A larger proportion of participants from the former (87.3%) compared to those from other counties (61.1%) were bypassers, the difference being statistically significant ($p < 0.0001$) indicating a stronger relationship between county of residence and the chances of bypassing other health facilities in order to seek out childbirth services at MTRH.

Table 4. 1: Respondents characteristics according to referral status

Variable	Total number of respondents (%)	Bypass status		χ^2	p value
		Bypassed (%)	Referred (%)		
Age group in years					
15 – 24	126 (31.6)	109 (86.5)	17 (13.5)	10.0	0.007
25 – 34	198 (49.6)	142 (71.7)	56 (28.3)		
35 – 45	75 (18.8)	55 (13.8)	20 (26.7)		
Mean age±SD (Range) in years	28.2±6.3 (18.0 – 44.0)	27.9±6.5 (18.0 – 44.0)	29.3±5.6 (18.0 – 41.0)	t=1.9; df=397	0.06
Marital status					
Single, separated, divorced, widow	98 (24.6)	83 (84.7)	15 (15.3)	4.7	0.03
Married	301 (75.4)	223 (74.1)	78 (25.9)		
Level of education					
None/Primary	115 (28.8)	81(70.4)	34 (29.6)	3.8	0.1
Secondary	159 (39.9)	124 (78.0)	35 (22.0)		
Tertiary	125 (31.3)	101 (80.0)	24 (19.2)		
Spouse level of education					
None/Primary	78 (25.7)	54 (69.2)	24 (30.8)	3.2	0.2
Secondary	53 (17.4)	44 (83.0)	9 (17.0)		
Tertiary	173 (56.9)	128 (74.0)	45 (26.0)		
Religion					
Christian	374 (94.4)	284 (75.9)	90 (24.1)	1.3	0.3
Muslim	22 (5.6)	19 (86.4)	3 (13.6)		
Occupation					
Student	63 (15.8)	57 (90.5)	6 (9.5)	20.6	0.0001
Unemployed	108 (27.1)	69 (63.9)	39 (36.1)		
Self-employed	141 (35.3)	117 (83.0)	24 (17.0)		
Employed	87 (21.8)	63 (72.4)	24 (27.6)		
Income (KSh.)					
0 – 5000	192 (48.1)	147 (76.6)	45 (23.4)	4.3	0.1
5001 – 10,000	78 (19.5)	66 (84.6)	12 (15.4)		
≥10,000	129 (32.3)	93 (72.1)	36 (27.9)		
County					
Uasin Gishu	237 (59.4)	207 (87.3)	30 (12.7)	37.0	<0.0001
Other counties	162 (40.6)	99 (61.1)	63 38.9)		

4.2 Extent of by-passing public county health facilities

Figure 4.1 illustrates the extent of bypassing health facilities. Out of 399 mothers who were admitted in MTRH, 306 (76.7%) by-passed lower level public health facilities while

93(23.3%) were actual referrals. Among those who were not referred, two-thirds (67.7%) were from Uasin Gishu while 32.4% were from other counties. Thus, the proportion on bypassers from Uasin Gishu County was twice that of participants from other counties.

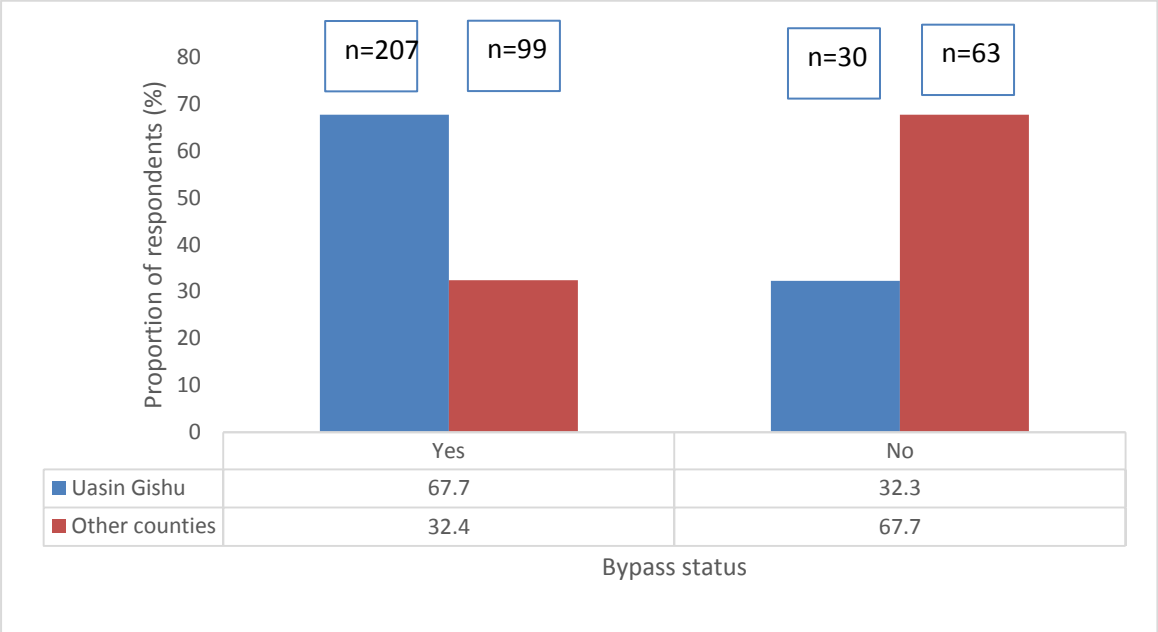

Figure 4. 1: Extent of by-passing county health facilities

Reason for not having been referred

Figure 4.2 depicts the reasons why respondents were not referred. Out of the 306, who were self-referred, 14% attended MTRH ANC clinic while 6% admitted they were not given referral letter. Majority (80%) acknowledged that they came straight from home to MTRH for delivery services without passing through any other public health facility

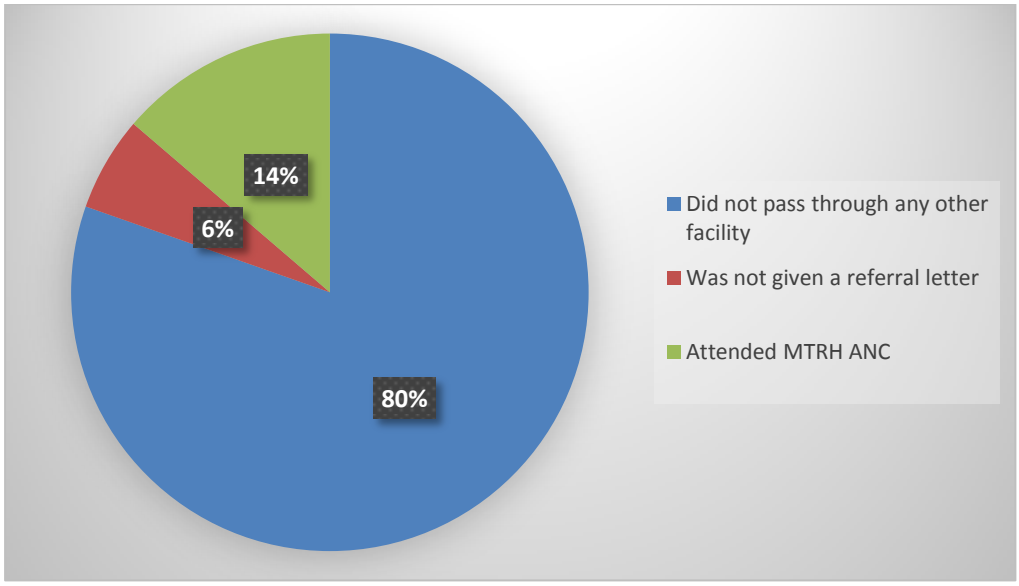

Figure 4. 2: Reason for not having been referred

Provision of information during ANC on the need of having a referral letter

As shown in Figure 4.3, majority (92%) were not informed about the need of having a referral letter during the ANC attendance. Only 8% were informed but still had no referral letter.

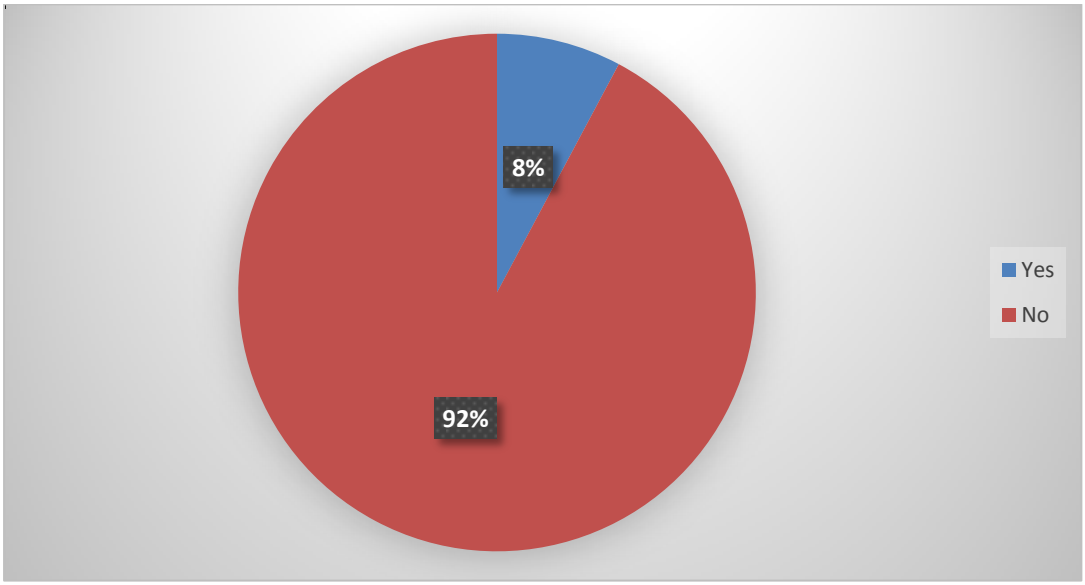

Figure 4.3: Informed during ANC on the need of having a referral letter

4.3 Socio-demographic factors associated with respondents' bypassing health facilities

Table 4.2 shows socio-demographic factors influencing bypassing health facilities in the study area. The findings show significant associations between age groups and bypassing health facilities. The likelihood of bypassing among the younger age group (15 – 24 years) was two and a half times as compared with their older counterpart aged 25 and above (OR: 2.5; 95% CI: 1.4 – 4.4; p = 0.001). In the same way, those who were single (single, separated, divorced or widows) were two-fold more likely to have been bypassers than the married (OR: 1.9; 95% CI: 1.1 – 3.6; p = 0.03). Results also show that being a resident of Uasin Gishu was strongly associated with bypassing health facilities. The residents were four-fold more likely to have bypassed unlike their counterparts from other counties. On the other, level of education had a negative association with by passing. Participants with none or primary level of education were 40% less likely to have bypassed the nearby facilities though the association was slightly statistically significant (OR: 0.6; 95% CI: 0.4 – 1.0; p = 0.06). There was, however, no evidence linking spousal level of education, occupation, religion and income with bypassing health facilities and seeking delivery services at MTRH, the results being statistically non-significant.

Table 4.1: Socio-demographic determinants associated with respondents' bypassing health facilities

Variable	Total number of respondents (n)	Bypass status		OR	95% CI	P value
		Bypass (%)	Referred (%)			
Age group (years)						
15 – 24	126	86.5	13.5	2.5	1.4 – 4.4	0.001
≥25	273	72.2	27.8			
Marital status						
Single, separated, divorced, widow	98	84.7	15.3	1.9	1.1 – 3.6	0.03
Married	301	74.1	25.9			
Level of education						
None/Primary	115	70.4	29.6	0.6	0.4 – 1.0	0.06
Secondary/Tertiary	284	79.2	20.8			
Spouse level of education						
None/Primary	78	69.2	30.8	0.6	0.4 – 1.1	0.08
Secondary/Tertiary	321	78.5	21.5			
Religion						
Christian	374	75.9	24.1	0.4	0.1 – 1.5	0.2
Muslim	25	88.0	12.0			
Occupation						
Student or Unemployed	171	73.7	26.3	0.7	0.5 – 1.2	0.2
Self or employed	228	79.0	21.0			
Income (KSh.)						
0 – 5000	192	76.6	23.4	1.0	0.6 – 1.6	0.9
≥5001	207	76.8	23.2			
County						
Uasin Gishu	237	87.3	12.7	4.3	2.7 – 7.2	<0.0001
Other counties	162	61.1	38.9			

4.3.1 Association between past obstetric history and respondents' bypassing health facilities

Table 4.3 shows the association between past pregnancy history of the respondent and bypassing health facilities. The odds ratio of respondents with first pregnancy bypassing health facilities was three-fold that of women with more than one parity (OR: 3.1; 95% CI: 1.7 – 5.6; p = 0.0001).Equally, women who had previous delivery in MTRH were twice as likely to have been bypassers unlike their counterparts who had delivered in other facilities (OR: 2.9; 95% CI: 1.7 – 4.8; p <0.0001) On the other hand, referral was 2.9 times more likely among women who had assisted or Caesarean Section than those who had normal birth(OR: 2.0; 95% CI: 1.0 – 3.8; p = 0.04). The chances of women with previous assisted or C/S delivery bypassing health facilities and seeking delivery services in MTRH was 60% lower than mothers who had normal previous delivery (OR: 0.4; 95% CI: 0.2 – 0.6; p <0.0001). Current study findings also revealed negative association between women with history of previous pregnancy complications and those who did not have such experience. Available evidence shows that the former group were 80% less likely to have bypassed nearby health facilities in comparison with those without history of previous pregnancy complications (OR: 0.2; 95% CI: 0.1 – 0.4; p <0.0001). Thus, referral was 3.7 more likely among women who had had previous pregnancy complications than those who had not (OR: 3.7; 95% CI: 2.2 – 6.2; p <0.0001). However, number of living children and where respondent delivered the previous child were not significantly associated with bypassing public health facilities. It was again noted that the likelihood of women who had complications that were detected during pregnancy bypassing health facilities was 90% lower than women with complications (OR: 0.1; 95% CI: 0.04 – 0.1; p <0.0001). The same was observed among women who had history of admission in the recent pregnancy (OR: 0.1; 95% CI: 0.07 – 0.24; p <0.0001), on

medication for chronic illness (OR: 0.1; 95% CI: 0.07 – 0.20; p <0.0001), those who had family history of twins, diabetes mellitus, hypertension or congenital abnormality (OR: 0.5; 95% CI: 0.3 – 0.8; p <0.0001) or women with medical history of DM, TB, heart disease, asthma or hypertension (OR: 0.2; 95% CI: 0.1 – 0.3; p <0.0001). Number of children that respondents had had no statistically significant association with bypassing health facilities (p = 0.6).

Table 4.2:Association between past history and respondents' bypassing health facilities

Variable	Total number of respondents (n)	Referral status		OR	95% CI	p value
		Bypass (%)	Referred (%)			
Parity						
First pregnancy	129	88.4	11.6	3.1	1.7 – 5.6	0.0001
More than 1 parity	270	71.1	28.9			
No. living children						
1 – 2	171	75.4	24.6	0.9	0.6 – 1.4	0.6
More than 2	228	77.6	22.4			
Where delivered previous child						
MTRH	81	85.2	14.8	2.0	1.0 – 3.8	0.04
Other facility or home	318	74.5	25.5			
Mode of previous delivery						
Assisted or CS	105	62.9	37.1	0.4	0.2 – 0.6	<0.0001
Normal	294	81.6	18.4			
History of previous pregnancy complications						
Yes	93	54.8	45.2	0.2	0.1 – 0.4	<0.0001
No	306	83.3	16.7			
Complications detected during pregnancy						
Yes	72	33.3	66.7	0.1	0.04 – 0.1	<0.0001
No	327	86.2	13.8			
Had been admitted in recent pregnancy						
Yes	60	40.0	60.0	0.1	0.07 – 0.24	<0.0001
No	339	83.2	16.8			
On medication for chronic illness						
Yes	69	39.1	60.9	0.1	0.07 – 0.2	<0.0001
No	330	84.6	15.5			
Family medical history						
Twin, DM, Hypertension, Congenital abnormalities	84	64.3	35.7	0.5	0.3 – 0.8	0.003
None	315	80.0	20.0			
Medical history						
DM, TB, Heart disease, Asthma, Hypertension	48	43.8	56.2	0.2	0.1 – 0.3	<0.0001
None	351	81.2	18.8			

4.3.2 Bivariate analysis on antenatal visits and respondents' bypassing health facilities

Table 4.4 presents bivariate analysis on antenatal visits and respondent's bypassing health facilities. Mothers who attended ANC at MTRH were 5.7 times more likely to have bypassed health facilities in comparison to those who attended other health facilities (OR: 5.7; 95% CI: 2.4 – 13.6; p <0.0001) with maximum 95% CI of 13.7. Conversely, women who used public transport to facility with ANC services were unlikely to have bypassed other facilities (OR: 0.5; 95% CI: 0.3 – 0.8; p = 0.006). Results also show that women who were told where to go when labour starts were 50% less likely to have bypassed other health facilities in order to deliver in MTRH (OR: 0.5; 95% CI: 0.3 – 0.8; p = 0.003). Conversely, recent planned pregnancy, number of ANC visits, who provided care during ANC, travel time to the nearest facility, average waiting time at ANC center and level of comfort felt during ANC visits were not significantly associated with bypassing health facilities.

Table 4.3: Bivariate analysis on antenatal visits and respondents' bypassing health facilities

Variable	Total number of respondents (n)	Referral status		OR	95% CI	P value
		Bypass (%)	Referred (%)			
Recent pregnancy planned						
Yes	267	75.3	24.7	0.8	0.5 – 1.3	0.3
No	132	79.6	20.4			
Received ANC						
Yes	339	74.3	25.7	0.3	0.1 – 0.8	0.08
No	60	90.0	10.0			
Where received ANC						
MTRH	93	93.6	6.4	5.7	2.4 – 13.7	<0.0001
Other facilities	306	71.6	28.4			
No. of ANC visits made for recent pregnancy						
≥4	99	72.7	27.3	0.7	0.4 – 1.3	0.3
<4	300	78.0	22.0			
Who provided ANC						
Nurse or midwife	297	75.8	24.2	0.8	0.5 – 1.4	0.5
Others	102	79.4	20.6			
Means of transport to ANC facility						
Public	195	70.8	29.2	0.5	0.3 – 0.8	0.006
Other (foot, car)	204	82.4	17.6			
Duration to the health facility						
Less than 1 hour	276	76.1	23.9	0.9	0.5 – 1.5	0.7
More than 1 hour	123	78.1	21.9			
Average waiting time at ANC facility						
Less than 1 hour	285	77.9	22.1	1.2	0.8 – 2.1	0.4
More than 1 hour	114	73.7	26.3			
Made to feel comfortable during ANC visit						
Yes	303	75.2	24.8	0.7	0.4 – 1.2	0.2
No	96	81.2	18.8			
During ANC told where to go when labour starts						
Yes	129	67.4	32.6	0.5	0.3 – 0.8	0.003
No	270	81.1	18.9			

Reasons for not receiving antenatal care

Among those who were bypassers, did not attend ANC but were admitted in MTRH for delivery, 47% claimed they did not have any knowledge on the benefits of ANC as illustrated in Figure 4.4. Thirty-three percent did not attend because the nearest health facility was too far, 13% were not allowed by their husbands while 7% could not because of religious reasons.

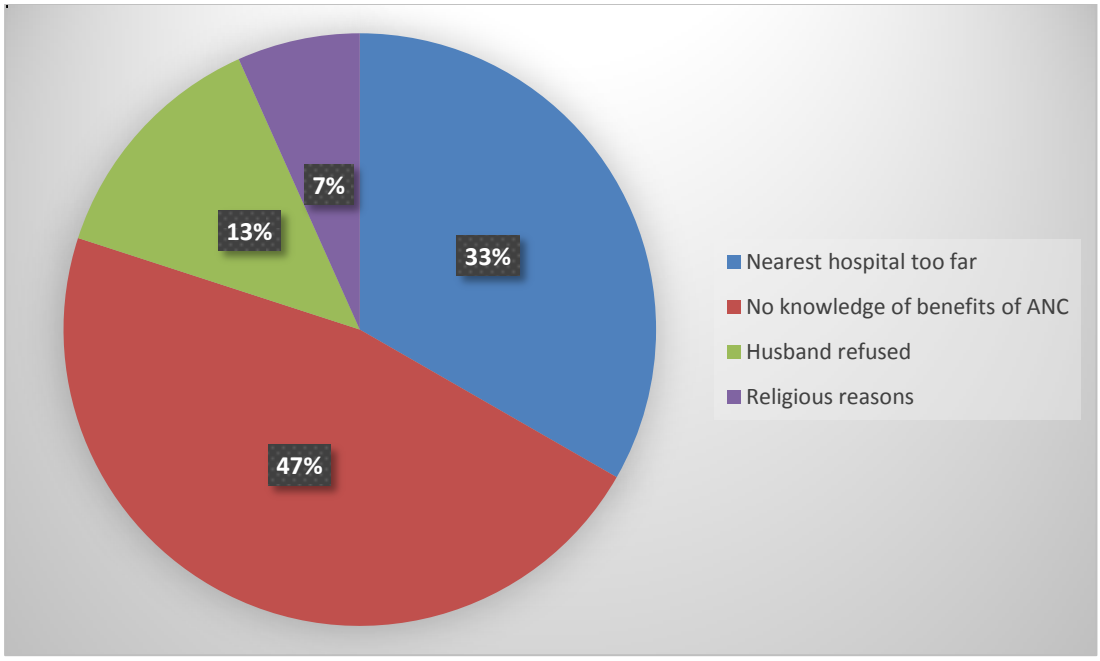

Figure 4. 4: Reasons for not receiving antenatal care

4.3.3 Multivariate logistic regression model of individual characteristic determinants of bypassing health facility

A multivariate logistic regression was conducted controlling for confounding factors to analyse individual determinants of bypassing county health facilities and results presented in Table 4.5. Factors that predicted increase in the proportion of respondents who bypassed included home county of residence (OR: 4.9; 95% CI: 2.2 – 11.1; p = 0.0001) and received ANC at MTRH (OR: 9.6; 95% CI: 8.1 – 14.6; p <0.0001). Factors that result in a significant decline in the proportion of those who are referred includes assisted delivery or cesarean section(OR: 0.2; 95% CI: 0.1 – 0.6; p = 0.006), use of public

transport (OR: 0.2; 95% CI: 0.1 – 0.5; p = 0.0003), complications detected during pregnancy (OR:0.1; 95% CI: 0.04 – 0.42; p = 0.0004), having been admitted in recent pregnancy (OR: 0.2; 95% CI: 0.1 – 0.8; p = 0.02) and being on medication for chronic illness (OR: 0.1; 95% CI: 0.03 – 0.41; p = 0.0009). A positive report of a medical history (OR: 0.3; 95% CI: 0.1 – 1.0; p = 0.06) was marginally statistically associated with bypassing health facility.

Table 4.4: Multivariate logistic regression model of individual characteristics determinants of bypassing health facility

Variable	Estimate	OR	95% CI	P value
Home county	1.6	4.9	2.2 – 11.1	0.0001
Assisted delivery or C/S	-1.5	0.2	0.1 – 0.6	0.006
Received ANC at MTRH	4.5	9.6	8.1 – 14.6	<0.0001
Use of public transport to ANC facility	-1.5	0.2	0.1 – 0.5	0.0003
Complications detected during pregnancy	-1.9	0.1	0.04 – 0.42	0.0004
Had been admitted in recent pregnancy	-1.4	0.2	0.1 – 0.8	0.02
On medication for chronic illness	-2.2	0.1	0.03 – 0.41	0.0009
Medical history	-1.1	0.3	0.1 – 1.0	0.06

4.4 Health facility characteristics associated with bypassing county public health facilities

4.4.1 Association between accessibility and bypassing county health facilities

Table 4.6 presents the relationship between ease of access of the nearest county health care facility and bypassing. Out of the four variables that were examined, only one: mode of transport to MTRH elicited statistically significant results. Mothers who used public transport to MTRH were 2.3 times more likely to have been bypassers (OR: 2.3; 95% CI: 1.4 – 4.0; p = 0.0009). Mean distance from nearest health facility, mode of transport and distance from MTRH were not significantly associated with referral to MRTH.

Table 4.5: Association between health facility accessibility and bypassing county health facilities

Variable	Total number of respondents (n)	Referral status		OR	95% CI	p value
		Bypass (%)	Referred (%)			
Mean distance from nearest health facility						
<5 km	180	75.0	25.0	0.8	0.5 – 1.3	0.5
≥5 km	219	78.1	21.9			
Mode of transport to nearest facility						
Walking	69	78.3	21.7	1.1	0.6 – 2.1	0.7
Motorised means	330	76.4	23.6			
Distance from home to MTRH						
<5 km	18	66.7	33.3	0.6	0.2 – 1.6	0.4*
≥5 km	381	77.2	22.8			
Mode of transport to MTRH						
Public means	162	85.2	14.8	2.3	1.4 – 4.0	0.0009
Other means	237	70.9	29.1			

*Fishers Exact Test

4.4.2 Association between availability of services and bypassing county health facilities

Respondents were asked about service availability in the nearest health facility and bivariate analysis was done to determine the relationship between service availability and bypassing health facilities. Evidence shows a strong indirect link between having previously delivered in a public health facility and having bypassed proximal facilities. Such mothers were 80% less likely to be bypassers (OR: 0.2; 95% CI: 0.1 – 0.3; p <0.0001). In the same way, respondents who confirmed that water was available in public facilities were 60% unlikely to have bypassed county facilities (OR: 0.4; 95% CI: 0.2 – 0.8; p = 0.006). Availability of ambulance in county health facilities was equally negatively associated with bypassing health facilities. Findings reveal that those who claimed of the public facilities having ambulance were 70% less likely to have been bypassers (OR: 0.3; 95% CI: 0.2 – 0.6; p = 0.0005). Available evidence shows that mothers who agreed that the public health facility has enough delivery beds were 50% less likely to have bypassed the facilities in comparison to those with contrary opinion (OR: 0.5; 95% CI: 0.3 – 1.0; p = 0.04). Similarly, mothers who agreed that public health facility has functional theatre and doctor to conduct C/S were 80% less likely to have been bypassers (OR: 0.2; 95% CI: 0.1 – 0.4; p <0.0001). Drugs and basic supplies availability in county public facilities also acted as a demotivating factor to seeking delivery services in MTRH as the mothers who confirmed that such commodities were available were 60% less likely to have bypassed the health facilities (OR: 0.4; 95% CI: 0.2 – 0.8; p = 0.01).

Table 4.6: Association between availability of services and bypassing county health facilities

Variable	Total number of respondents (n)	Referral status		OR	95% CI	p value
		Bypass (%)	Referred (%)			
Has given birth in public health facility before						
Yes	171	59.6	40.4	0.2	0.1 – 0.3	<0.0001
No	228	89.5	10.5			
If Yes, Waiting time in public health facility						
<1 hr	135	57.8	42.2	0.7	0.3 – 1.5	0.3
≥1 hr	36	66.7	33.3			
If Yes, service charges for delivery in public health facility						
Yes	81	55.6	44.4	0.7	0.4 – 1.3	0.3
No	90	63.3	36.7			
If Yes, water available in public health facility						
Yes	75	48.0	52.0	0.4	0.2 – 0.8	0.006
No	96	68.7	31.3			
If Yes, ambulance available in public health facility						
Yes	99	48.5	51.5	0.3	0.2 – 0.6	0.0005
No	72	75.0	25.0			
If Yes, public health facility has enough delivery beds						
Yes	111	54.1	45.9	0.5	0.3 – 1.0	0.04
No	60	70.0	30.0			
If Yes, public health facility has functional theatre and doctor to handle C/S						
Yes	54	33.3	66.7	0.2	0.1 – 0.4	<0.0001
No	117	71.8	28.2			
If Yes, public health facility has readily available drugs and supplies						
Yes	84	50.0	50.0	0.4	0.2 – 0.8	0.01
No	87	69.0	31.0			

4.4.3 Multivariate logistic regression model of health facility determinants of bypassing health facility

Multiple logistic regression was performed on referral of mothers controlling for confounders to analyse health facility determinants of bypassing health facilities and results reported in Table 4.8. Only two factors were identified as determinant of bypassing health facilities. Mothers who come from areas where the nearest health facility has an ambulance are 60% less likely to be bypassers (OR: 0.4; 95% CI: 0.2 – 0.9; p = 0.03). The same is true of those who come from facilities with functional theatres and where doctors can handle C/S where such mothers are also 60% unlikely to have bypassed health facilities (OR: 0.4; 95% CI: 0.2 – 0.8; p = 0.01).

Table 4.7: Multivariate logistic regression model of health facility determinants of bypassing health facility

Variable	Estimate	OR	95% CI	P value
Ambulance available in public health facility	-0.8	0.4	0.2 – 0.9	0.03
Public health facility has functional theatre and doctor to handle C/S	-1.0	0.4	0.2 – 0.8	0.01

4.4.4 Level of satisfaction with care experience during previous childbirth and bypasing of public health facilities

Respondents were asked about their past experience during childbirth and bivariate analysis done to establish the association between their experience and bypassing. Results were presented in Table 4.9 below. Among the bypassers, an insignificant proportion of those who were satisfied (70%) compared with those who were not satisfied (79.6%) felt that staff treated their personal information with confidence with a lower odds ratio (OR: 0.6; 95% CI: 0.4 – 1.0; p = 0.04). In this scenario, satisfaction with the way the staff treated personal information with confidence determined whether they would bypass or not. On the contrary, for the same categoryof bypassers, the proportions that were

dissatisfied that during labour for the previous childbirth, there were a lot of people which made them feel uncomfortable was significantly smaller (66.7%) than those who were satisfied (82.3%). The results show that 60% of those who were dissatisfied were unlikely to have bypassed county health facilities (OR: 0.4; 95% CI: 0.3 – 0.7; p = 0.0004). Bivariate analysis on level of satisfaction with the status of equipment used on them during previous childbirth having been in good working order shows that a highly significant smaller proportion of bypassers were satisfied (65%) compared with those who were not satisfied (86.3%). Respondents who were satisfied with the status of equipment were 70% less likely to have bypassed health facilities (OR: 0.3; 95% CI: 0.2 – 0.5; p <0.0001), the results being highly significant. Time spent waiting for health care and not feeling neglected because staff kept on checking on the respondents during the previous childbirth was not significantly associated with bypassing health facilities.

Table 4.8: Level of satisfaction with care experience during previous childbirth and bypasing of public health facilities

Variable	Total number of respondents (n)	Referral status		OR	95% CI	P value
		Bypass (%)	Referred (%)			
Time spent waiting for health care						
Satisfied	121	76.7	23.3	1.0	0.6 – 1.6	0.99
Not satisfied	149	76.7	23.3			
Staff kept on checking on me; did not feel neglected						
Satisfied	87	72.1	27.9	0.7	0.4 – 1.1	0.1
Not satisfied	183	78.9	21.1			
Staff treated my personal information with confidence						
Satisfied	81	70.0	30.0	0.6	0.4 – 1.0	0.04
Not satisfied	189	79.6	20.4			
During labour there were a lot of people which made me feel uncomfortable						
Dissatisfied	98	66.7	33.3	0.4	0.3 – 0.7	0.0004
Satisfied	172	82.3	17.7			
Equipment used on me were in good working order						
Satisfied	121	65.0	35.0	0.3	0.2 – 0.5	<0.0001
Not satisfied	149	86.3	13.7			

4.4.5 Level of satisfaction with midwives during previous childbirth and bypasing of public health facilities

Respondents were asked about their past experience with midwives during childbirth and bivariate analysis done to examine the association between their experience and having bypassed nearby facilities and the results presented in Table 4.10. Only one factor was marginally associated with bypassing health facilities. Respondents who were satisfied by the way in which staff responded to their questions during labour and delivery process in the previous childbirth were 40% less likely to be bypassers (OR: 0.6; 95% CI: 0.4 – 1.0; p = 0.06). Health facility providing privacy during vaginal examination, medical staff respecting client's privacy by not being left exposed during delivery, having qualified staff, being satisfied with the way the midwife conducted delivery and overall satisfaction with all the care provided did not elicit statistically significant relationship with bypassing health facilities.

Table 4.9:Level of satisfaction with midwives and health facility staff during previous childbirth and bypasing of public health facilities

Variable	Total number of respondents (n)	Referral status		OR	95% CI	P value
		Bypass (%)	Referred (%)			
Health facility provided privacy during vaginal examination						
Satisfied	77	76.3	23.7	1.0	0.6 – 1.6	0.9
Not satisfied	193	76.8	23.2			
Medical staff respected my privacy; I was not left exposed during delivery						
Satisfied	85	71.4	28.6	0.6	0.4 – 1.1	0.09
Not satisfied	185	79.1	20.9			
Health staff are qualified						
Satisfied	112	72.7	27.3	0.7	0.4 – 1.1	0.1
Not satisfied	158	79.5	20.5			
Staff responded to my questions and concerns during labour and delivery						
Satisfied	91	71.1	28.9	0.6	0.4 – 1.0	0.06
Not satisfied	179	79.6	20.4			
I was satisfied with the way the midwife conducted my delivery						
Satisfied	99	73.5	26.5	0.7	0.5 – 1.2	0.2
Not satisfied	171	78.6	21.4			
Overall satisfaction with all the care provided						
Satisfied	103	76.5	23.5	1.0	0.6 – 1.6	0.9
Not satisfied	167	76.8	23.2			

4.4.6 Association between respondent's level of satisfaction with MRTH delivery during childbirth and bypassing public health facility

Respondents were asked about their level of satisfaction with care received in MTRH during the current delivery and results presented in Table 4.11. Communication by health workers had a positive influence on satisfaction with care. Mothers who were satisfied with staff communication were three and a half times more likely to have bypassed health facilities (OR: 3.5; 95% CI: 1.4 – 9.2; p = 0.01) unlike those who were referred. Other factors such as consultation time, availability of staff in delivery room or in postnatal ward, cleanliness in the facility or privacy in the delivery room had no statistical significance with bypassing health facilities.

Table 4.10: Association between respondent's level of satisfaction with MRTH delivery during childbirth and bypassing public health facility

Variable	Total number of respondents (n)	Referral status		OR	95% CI	P value
		Bypassers (%)	Non bypassers (%)			
Consultation time						
Satisfied	390	76.9	23.1	1.7	0.4 – 6.8	0.4*
Not satisfied	9	66.7	33.3			
Communication by health care workers						
Satisfied	381	77.9	22.1	3.5	1.4 – 9.2	0.01*
Not satisfied	18	50.0	50.0			
Availability of staff in delivery room						
Satisfied	378	76.2	23.8	0.5	0.2 – 1.9	0.4*
Not satisfied	21	85.7	14.3			
Availability of staff in Postnatal Ward						
Satisfied	342	76.3	23.7	0.9	0.4 – 1.7	0.7
Not satisfied	57	79.0	21.0			
Cleanliness in the health facility						
Satisfied	318	77.4	22.6	1.2	0.7 – 2.1	0.5
Not satisfied	81	74.1	25.9			
Privacy in delivery room						
Satisfied	276	75.0	25.0	0.7	0.4 – 1.2	0.2
Not satisfied	123	80.5	19.5			

***Fisher's Exact Test**

4.4.7 Multivariate logistic regression model of determinants of bypassing health facility and level of satisfaction of respondents with health care services

A multivariate logistic regression results on determinants of referral to MRTH controlling for confounders on mothers' level of satisfaction with health facility services was done and presented in Table 4.12. Three determinants have been identified. Where clients were satisfied with communication from health workers in MTRH, mothers are five times more likely to have been bypassers (OR: 5.0; 95% CI: 1.7 – 14.4; p = 0.003). Similarly, this was the case where clients were dissatisfied with a lot of non-staff being around client making them uncomfortable during labour where 40% were less likely to be bypassers (OR: 0.6; 95% CI: 0.3 – 1.0; p = 0.04). However, where mothers were satisfied with equipment used on them having been in good working order, 80% were less likely to have bypassed county facilities as compared to referred (OR: 0.2; 95% CI: 0.1 – 0.5; p <0.0001).

Table 4.11: Multivariate logistic regression model of determinants of bypassing county health facility and level of satisfaction of respondents with health care services

Variable	Estimate	OR	95% CI	P value
A lot of non-staff being around client making them uncomfortable during labour	-0.6	0.6	0.3 – 1.0	0.04
Equipment used on me were in good working order	-1.5	0.2	0.1 – 0.5	<0.0001
Communication by health care workers	1.6	5.0	1.7 – 14.4	0.003

CHAPTER FIVE

DISCUSSION

5.0 Overview

This chapter discusses the main findings as per the study objectives. The discussion is presented as follows: the first section discusses the extent of bypassing county public health facilities among women seeking childbirth services at MTRH. It is followed by a discussion on the individual characteristics associated with bypassing county public hospitals and finally the health facility characteristics that influence bypassing county public health facilities among women seeking childbirth services at MTRH.

5.1 Extent of bypassing county health facilities for childbirth services

The proportion of women accessing MTRH for childbirth without going through county public health facilities for the same service was found to be 76.7%. The bypassing status in this study is comparable with Nepal where 70.2% of women who delivered at the hospital had bypassed their proximal birthing facility (Karkee *et al.,* 2015).In the current study, the extent of bypassing is however, significantly higher than that of the preceding studies in India and Tanzania that reported proportions of 37.7% and 41.8% respectively (Salazar *et al.,* 2016;Kruk *et al.*,2014). This variation might be attributed to the differences in the tiers of the health care facilities, whereby the current study was carried out in a teaching and referral facility which is a tertiary facility whereas the studies in India and Tanzania were in the rural district hospitals. Women generally were found to bypass the nearby county health facilities in favour of those with better quality of service. The preference for MTRH in the current study despite the proximity of county public health facilities suggests that access to higher level of maternal care occurs in the quest for specialty care which is a main aspect in household-level choice of where to access

appropriate health care. This has also been associated with the awareness that MTRH has a maternity hospital which is independent of the other units of the hospital as elaborated in the methodology. The Riley Mother and Baby Hospital is well equipped to handle maternal and newborn cases including those requiring emergency and specialized care.

The degree of bypassing was higher amongst women from Uasin Gishu County in comparison to those from other counties. The higher odds of bypassing imply that the urban population living within Eldoret town easily access Moi Teaching and Referral Hospital (MTRH) without necessarily going through other county public health facilities. Evidence from this study supported this finding with significant association between mode of transport to MTRH and bypassing (p=0.0002). This suggests that with the proximity of the hospital to the town centre, women using public means of transport simply access the hospital without the need to incur additional transport costs.

Adherence to policy guidelines on referral remains a challenge in Uasin Gishu County. Results from the current study established that high proportion of women (84%) were not conversant about the necessity of a formal referral to higher tier of care during antenatal visit if the health care provider felt that the woman requires specialized care. A referral note serves to inform the service provider at the higher level facility about the woman's pregnancy progress, stating the complications detected, care provided prior to referral and the need for specialized care. This was found to be lacking among the majority of the women delivering at the MTRH.

5.2 Individual characteristics associated with bypassing health facilities

Association between individual characteristics and bypassing county public health facilities was elicited in our study. Women aged 25 years and above, having attained at least secondary education, primiparity, antenatal care use, history of previous pregnancy

complications, and maternal history of medical conditions were associated with a higher likelihood of bypassing county public health facilities for childbirth in MTRH.

Women aged 25 years and above were two and a half times more likely to have bypassed county public health facilities (p=0.001). Comparable results were reported in a previous study by Karkee *et al* (2013) where women aged above 25 years and above had higher odds of bypassing than women aged below 25 years. Having attained 35 years or more in rural Tanzania was also related with higher probability of bypassing than younger age (Kruk *et al*., 2014).It is apparent that as women's age continue to advance, pregnancy related complications are expected and as a result these women are encouraged during antenatal visits to seek childbirth services from facilities that can handle pregnancy related complications should they arise during delivery.

Maternal education level was negatively associated with bypassing county health facilities. Women with none or primary level of education were established to be 40% less likely to bypass health facilities for childbirth. Respondents with at least secondary education were likely to bypass. Possible explanation to this is that with advance in education, women get more knowledgeable about the quality of care that they desire and which facilities offer that kind of care. Similarly, with education, women are likely to be financially stable hence can afford to travel further in pursuit for quality maternal services.

Bypassing was prevalent among women delivering their first child than the subsequent child (p=0.0001). Comparable trends were reported in the previous studies done Tanzania and Nepal (Kruk *et al*., 2014; Karkee *et al*., 2013). This finding suggests that women as well as their antenatal care providers regard first time pregnancies risky and therefore seek specialized obstetric care for these women. Literature has cited that first time pregnant women are likely to be more apprehensive about the delivery than women who

have previously given birth. This is deemed to have an impact in their choice of delivery health facility in addition to the health care provider (Rajani, 2016).

Antenatal use has been found to be among the determinants of bypassing of county health facilities. Women who attended at least four antenatal visits were 30% less likely to bypass county health facilities. This suggests that women bypassing these health facilities attended less than the recommended four visits. Contrary to this finding, a study by Rajani (2016) demonstrated no relationship between the number of antenatal visits and bypassing. Women were found to bypass local health facilities in spite of whether they attended antenatal care or did not. Women who received their antenatal care at MTRH were more than five times likely to have bypassed ($p< 0.0001$). It is apparent that women attending MTRH antenatal clinic were more likely to utilize the same facility for childbirth services. In addition, respondents who were informed during antenatal visit about where to go when labor starts were more likely to be official referrals compared to those who were not informed ($p=0.009$).

Experience of complications during the previous pregnancy and the mode of the previous childbirth were also associated with higher probability of bypassing ($p<0.006$). Similarly, having visited the MTRH before for childbirth was two times more associated with bypassing the county health facilities ($p<0.0001$). Having a complication such as early pregnancy bleeding, hypertension, anemia among others in the latest pregnancy also increased the odds of bypassing county health facilities for childbirth ($p=0.0004$). These results are comparable with previous studies conducted in other countries that report a direct relationship between the severity of a disease (Gauthier and Wane, 2011), obstetric complication during in the recent pregnancy (Karkee *et al*., 2016) or a previous childbirth (Kante *et al*., 2016), and the bypassing of facilities for childbirth. The utilization of

childbirth service therefore depends on the availability of service at the nearby facility as well as upon the quality of care in the preferred facility.

5.3 Health facility factors associated with bypassing health facilities

Health facility characteristics such as accessibility of the nearest county health facility, availability of social amenities, availability of functional theatre and standby doctor to handle emergency cesarean sections, availability of an ambulance, and the accessibility of medicines and equipment were examined in this study.

Accessibility in terms of geographical distance to the nearby health facility offering childbirth services is recognized as a significant factor that informs women's choice of childbirth facility. The current study reported no significant association linking mean distance to the woman's close facility and it being bypassed. In as much as most women's nearby county health facilities were found to be accessible and offering delivery services, this did not deter them from bypassing. The mode of transport to MTRH was established to be significantly associated with bypassing. Mothers who used public transport to MTRH were almost two and half times more likely to have been bypassers ($p = 0.0009$). This suggests that the proximity of the hospital to the town centre with a bus stage closer to the hospital allows clients to access the facility without incurring further transport costs. MTRH is also attractive to women no matter the distance owing to its independent functionality of the Mother and Baby hospital that offers maternal and child care as elaborated in methodology.

Among the parameters on service availability at the county health facilities reported in the current study, multivariate analysis established a significant association between availability of standby ambulance and a functional theatre at the facilities and bypassing. The odds of bypassing county health facilities was found to be higher in women whose

nearby health facilities did not have a functional theatre and a doctor to handle emergency cesarean sections (p< 0.0001) as well as an ambulance for emergency evacuation to an advanced level of care in the event of emergencies (p=0.0005). The above findings can be related with results reported by Kahabuka *et al* (2011) that showed 59% of caretakers did not utilize their nearer primary health facilities due to poor services (9.7%),lack of skilled health workers (3.4%), lack of adequate facilities (42.2%) and non-availability of drugs (15.5%).

The expectation of quality maternal care plays a key role in the selection of childbirth facilities as women tend to access facilities staffed with health care providers who are competent enough to handle them with due respect and kindness. Low and colleagues (2011) in their study cited that more than 50% of women seen at the hospital who were self-referred were motivated by the women's perception of obstetric care quality as well as attitude and respect for women among the health providers.

The current study showed important findings in relation to maternal satisfaction in different aspects: care experience and competence of midwives during previous delivery as well as overall care during latest delivery at MTRH in terms of consultation time, communication by health workers, facility cleanliness and staff availability during delivery.

Among the bypassers, a higher proportion (79.6%) were dissatisfied with the way the staff treated their personal information with confidentiality during their previous delivery with a lower odds ratio (p=0.04). Regarding the status of equipment used during delivery, respondents who were satisfied with status of equipment were 70% less likely to have bypassed health facilities. (p<0.0001).This suggests that women prefer to deliver in facilities where they feel confident and that their needs are met. With regards to

competence of the midwives during the previous delivery, only one factor was to be associated with bypassing county facilities. Where respondents were satisfied by the way staff responds to their inquiries during delivery in the previous childbirth, women were 40% less likely to be bypassers. This shows that the concerns that a women has during childbirth are expected due to the uncertainties associated with childbirth such as complications that might arise. Consequently, women need to be constantly updated and reassured during the process of childbirth. Satisfaction with childbirth experience in the latest delivery at MTRH was found to be significant in the current study.

Significant association with bypassing was found in communication by health care workers (p=0.0003), equipment used found to be in good working condition (< 0.0001) and the number of non- staff present during labour and delivery (p=0.04). Evidence showed that health care provider communication to the client significantly influences client satisfaction as well as general utilization of a facility for childbirth. Similarly, the perception among women on working condition of delivery equipment defines a woman's selection of delivery facility. It is associated with the nature of the childbirth process that requires all equipment to be I working condition to handle deliveries and any emergencies that might arise. For these reasons, the pattern of bypassing realized in the current study and related studies reveal that pregnant women opt for better services, regardless of economic and temporal expenses of travelling further to high level facilities.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

This section provides a conclusion and recommendations to policy makers and MTRH that can go a long way in the improvement of health care system in Kenya if implemented.

Bypassing county public health facilities for childbirth was found to be a common occurrence in Uasin Gishu County. Close to 76.7% of the women delivering at MTRH bypassed county health facilities for child birth at MTRH. In essence, we document here that in Uasin Gishu County, the availability of maternal and neonatal services in county health facilities does not translate into their use by women seeking childbirth services. This observation occurs despite the devolution of health services and the elimination of user fees in all facilities by the government which has brought about an improvement in health services across the county.

The individual characteristics that predicted increase in proportion of respondents who bypassed health facilities included residing in Uasin Gishu County and receiving antenatal care at MTRH. History of assisted or cesarean delivery, use of public transport for ANC, having complications detected during pregnancy, admitted in the recent pregnancy and being on medication for chronic illnesses were associated with significant decrease in proportion of those who were referred.

The variations in facilities' functionality in terms of accessibility and availability of services were important determinants associated with bypassing a facility for childbirth. Availability of functional theatres, a doctor and a standby ambulance at the nearby health facilities were associated with bypassing. Perception of improved service quality in the

tertiary facilities in terms of satisfaction with health care services was also a reason for patients to travel past the nearby county health facility.

6.2 Recommendations

Basing on the findings of this study, the subsequent recommendations were made to the respective stakeholders:

- The County Health Administrator should shift the focus of maternal care to the sub-county and county referral hospitals that are equipped to handle childbirth services. Women should be informed about maternal and child health services offered at these facilities mainly to reduce the magnitude of bypassing county public health facilities while seeking childbirth services.
- The Chief Executive Officer of MTRH in conjunction with the County Officer in charge of Health should work towards the strengthening of the county referral system. This being a multifaceted approach, it will ensure that irrespective of maternal characteristics, women will be able to utilize the appropriate level of care while allowing referrals to higher level among women in need of specialized care.
- The County Executive officer should communicate with the concerned bodies such as KEMSA to get supplies and equipment necessary for maternal and neonatal care, particularly for labour and delivery service. The county health facilities should be well equipped with functional theatres with a doctor who is able to handle obstetric emergencies while referring those in need of specialized care. In addition, the county health administration should continue with the exchange program between MTRH and county so as to ensure that there is shared knowledge and practice regarding quality maternal care.

6.3 Further Research

With respect to the scope of this study, the current study did not incorporate data on objective or observed quality of childbirth care in the county public health facilities. Future research combining women characteristics with actual survey of the county health facilities would be of value to make a judgment on the perception of childbirth quality of care with observed authentic quality of maternal care in the same facilities.

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APPENDIX I: INFORMED CONSENT

INFORMED CONSENT FROM

Study Title: Determinants of bypassing county public health facilities among women seeking childbirth services at Moi Teaching and Referral hospital, Eldoret

Principal Investigator: Damaris Jepkosgei

Supervisors: Mr. John Arudo

Dr. Mary Kipmerewo

Introduction

I would like to tell you about a study being conducted by the above listed researchers. The purpose of this consent form is to give you the information you will need to help you decide whether to participate in the study or not. Feel free to ask any questions about the purpose of the research, what happens if you participate in the study, the possible risks and benefits, your rights as a volunteer, and anything else about the research or this form that is not clear. When we have answered all your questions to your satisfaction, you may decide if you want to be in the study or not. This process is called 'informed consent'. Once you understand and agree to be involved in the study, I will request you to sign your name on this form. You should understand the general principles which apply to all participants in a medical research: i) Your decision to participate is entirely voluntary ii) You may withdraw from the study at any time without necessarily giving a reason for your withdrawal iii) Refusal to participate in the research will not affect the services that you are entitled to in this health facility or other facilities.

May I continue? YES / NO

Purpose of the study

The researchers listed above are interviewing women who have come to deliver their child at Moi Teaching and Referral Hospital. The purpose of the interview is to find the

reasons as to why women choose to come to Moi Teaching and Referral Hospital for childbirth and not in the county public health facilities that are nearer to their homes. Participants in this research study will be asked questions about their socio-demographic characteristics such as age, level of education, marital status, residence, occupation and income. Participants will also be asked about their previous and latest pregnancy history. There will be approximately 400 participants in this study who will be selected randomly. We are therefore asking for your consent to participate in this study.

What will happen if you decide participate in this research study?

If you agree to participate in this study, the following things will happen: You will be interviewed by a trained interviewer before going home in a private area where you feel comfortable answering questions. The interview will last approximately 10 minutes. The interview will cover topics such as socio demographic data and history of previous pregnancies. Once we are done with the interview, we will allow you to ask any question or raise any concern and we shall be able to respond appropriately.

Risks, harms, discomforts associated with this study

Medical research has the potential to introduce psychological, social, emotional and physical risks. Effort should always be put in place to minimize the risks. In this study, there are no potential risks associated with your participation. We will keep everything you tell us as confidential as possible. We will use a code number to identify you in a password-protected computer database and will keep all of our paper records in a locked file cabinet. During the interview, if there is any question that you do not want to respond to, you can skip them. This is because it is your right to refuse the interview or any questions asked during the interview.

Benefits of being in this study

There will be no direct material gain for participating in this study. However, the researcher will give recommendations to the concerned bodies that will help improve on the care that the mothers receive.If you have further questions or concerns relating to this study, please call or send a text message to the researcher using the number provided at the bottom of this page. For more information about your rights as a research participant you may contact the Secretary/Chairperson, MMUSTIERC on mmustierc@mmust.ac.ke. or contact Damaris Lagat 0737571787

I have read this consent form or had the information read to me. I have had the chance to discuss this research study with a study counselor. I have had my questions answered by him or her in a language that I understand. The risks and benefits have been explained to me. I understand that I will be given a copy of this consent form after signing it. I understand that my participation is voluntary and that I may choose to withdraw it any time.

I understand that all efforts will be made to keep information regarding my personal identity confidential. I voluntarily agree to participate in this research study:

Parent/Guardian signature /Thumb stamp: _____ Date _____

Parent/Guardian initials: _____

Researcher's statement

I, the undersigned, have fully explained the relevant details of this research study to the participant named above and believe that the participant has understood and has knowingly given his/her consent.

Initials: _____Date: _____Signature: _____

Witness Printed Name (If witness is necessary) _____

Signature: _____Date: _____

APPENDIX II: DATA COLLECTION TOOL

File number……

Introduction

Hello. My name is Damaris Lagat. I am a Master of Science in Nursing student of Masinde Muliro University. I am conducting a study on reasons as to why women bypass nearby health facilities while seeking delivery services. I will be asking you some questions which will take about 20 minutes. Your responses will be kept confidential and will not be shared with anyone other than my supervisors. You don't have to participate in this study, but we hope you will agree to answer the questions since your views are important. If I ask you any question you don't want to answer, just let me know and I will go on to the next question or you can stop the interview at any time without jeopardizing your right to care

In case you need more information about the study, you may contact me on mobile number: 0721380119 or 0737571787.

IDENTIFICATION			
Interviewer Code …… Respondent's code……. Interviewee home county……. Sub county…… Date of interview ……			
SECTION A: SOCIODEMOGRAPHIC INFORMATION			
.NO	Question	Code	Response
01	What is your age?		
02	What is your marital status?	01 Single 02 married 03 Separated 04 Divorced 05 Widow	
03	What is your highest level of education?	01 None	

		02 Primary 03 Secondary 04 Tertiary	
04	What is your spouse's highest level of education?	01 None 02 Primary 03 Secondary 04 Tertiary	
05	What is your religion?	01 Christian 02 Muslim 03 None 04 Other	
06	What is your occupation?	01 Student 02 Unemployed 03 Self-employed 04 Employed	
07	How much is your family income per month (approximate in Ksh.)	01 None 02 1- 5000 03 5001- 10000 04 Above 10000	
	SECTION B: PREGNANCY HISTORY		
08	What is your parity (How many times have your pregnancy ended in a live birth and how many times have you miscarried or had an abortion)?	01 First pregnancy (primigravida) 02 Para 2-4 03 Parity above 5	
09	How many other living children do you have?	……..	
10	For that previous child, where did you deliver him/her?	01 Home 02 Private hospital 03 County public hospital 04 M.T.R.H	

11	What was the mode of delivery for that previous child?	01 Normal delivery 02 Assisted delivery 03 Caesarean section	
12	Do you have any history of medical or obstetric complications in previous pregnancies?	01 Yes (specify) 02 No	
13	Was the recent pregnancy planned?	01 Yes 02 No	
14	For this recent pregnancy, did you receive any Antenatal care?	01 Yes 02 No	Go to 24
15	If Yes, where did you receive your antenatal care?	01 Private hospital 02 County public health facility 03 M.T.R.H	
16	How many visits did you attend ANC in the recent pregnancy?	…… ……..	
17	Who did you receive Antenatal care from? (primary care provider)	01 Doctor 02 Nurse/Midwife 03 Community health worker 04 Other (Specify)	
18	How did you usually get to the facility for antenatal care?	01 On foot 02 Public transport 03 Hired car 04 Own car	
19	How long did it usually take you to reach this facility?	01 More than 2 hours 02 1hour-2hours 03 30 minutes-1	

		hour 04 Less than 30 minutes	
20	What was the average amount of time that you waited to see medical staff when you visited the facility for ANC?	01 Less than 30 min. 02 2- 30 min. to 1 hour 03 1 hour to 1 ½ hours 04 1 ½ to 2 hours 05 More than 2 hours	
21	Were you made to feel comfortable by the staff at the facility during ante natal clinic?	01 Yes 02 No	
22	Were any complications detected during your pregnancy?	01 Yes (specify) 02 No	
23	During ANC visit, did the care providers tell you where you have to go to give birth when labour starts?	01 Yes 02 No	
24	What are the reasons for not receiving antenatal care?	01 Nearest facility is too far and there is no transport 02 Costly 03 No knowledge of health benefit of ANC 04 Presence of male staff at nearby facility 05 Husband refused 06 Religious	

		reasons 07 Other (specify)	
25	Were you admitted in the recent pregnancy?	01 Yes (specify reason) 02 No	
26	Are you on any medication	01 Yes (specify) 02 No	
27	Which of the following abnormalities do you have in your family?	01 None 02 Twins 03 Diabetes 04 Hypertension 05 Congenital abnormalities 06 Other (specify)……	
28	Which of the following diseases do you suffer from?	01 None 02 Diabetes mellitus 03 Tuberculosis 04 Heart disease 05 Asthma 06 Hypertension	
	SECTION C: KNOWLEDGE OF REFERRAL SYSTEM		
29	Were you referred?	01 Yes 02 No	
30	If yes, were you given referral letter?	01 Yes 02 No	
31	If Yes, show me the referral letter	01 Available 02 Not available	
32	If no, why?	01 Did not pass	

		through any other facility 02 I was not given 03 Other reason (specify)	
33	During your antenatal visit, were you informed about the use / importance of referral letter before coming to MTRH?	01 Yes 02 No	
	SECTION D: ACCESSIBILITY AND FUNCTIONALITY OF THE NEARBY PUBLIC HEALTH FACILITY		
34	Which county public health facility is nearby to your home that offers childbirth services?	……	
35	On average how far is the county public health facility from your home?	01 5km or less 02 5km-10 Km 03 More than 10Km	
36	What mode of transport do you use to access your nearby facility?	01 Walking 02 Own car 03 Hired car 04 Bus/ Matatu	
37	Have you ever given birth in that public health facility?	01 Yes 02 No	If No go to 46
38	How long did you wait between the time you first arrived at the facility and the time health provider attended to you for consultation?	01 0-30 minutes 02 30 minutes-1 hour 03 1 hour-2 hours 04 Over 2 hours	
39	Are there any charges for the delivery that one has to pay?	01 Yes 02 No	
40	Does the health facility operate for 24 hours?	01 Yes 02 No	

41	Does the facility have running water and functional toilets?	01 Yes 02 No	
42	Does the facility have a functioning standby ambulance for transportation in cases of referrals and emergencies?	01 Yes 02 No	
43	Is the facility quipped with adequate number of delivery beds?	01 Yes 02 No	
44	Is there a functional theatre and a doctor that can handle cesarean sections	01 Yes 02 No	
45	How about drugs and supplies used during deliver, do you think they are readily available in the facility?	01 Yes 02 No	
46	How far is your home from M.T.R.H?	01 5km or less 03 5km-10 Km 03 More than 10Km	
47	Which means of transportation have you used to come to M.T.R.H?	01 Own car 02 Hired car 03 Taxi 04 Ambulance 05 Bus/ Matatu 06 Walked	

SECTION E: PATIENT SATISFACTION WITH HEALTH SERVICES DURING PREVIOUS CHILDBIRTH

(For mothers who have given birth before at a health facility**)**

Place of birth for the previous child (q.10 above)……..

Kindly respond by indicating the level to which you are in agreement/satisfied with the statements provided in regard to the previous childbirth.

Key words:

1 Completely satisfied
2 Satisfied
3 Neutral
4 Dissatisfied
5 Completely dissatisfied

	Code	1	2	3	4	5
SN.	Statement					
1	On a scale of one to five how would you describe your level of satisfaction with the time you spent waiting for health care providers to examine you?					
2	To what extent do you agree with this statement? The staff kept checking on me thus I did not feel neglected / ignored during the waiting process					
3	How would you rate your level of agreement with the following statement? The staff treated my personal information with confidence					
4	To what extent do you agree with the following statement? The health facility provided privacy during vaginal examination.					
5	During labour there were a lot of people who are non-staff around me which made me feel uncomfortable					
6	The medical staff respected my privacy; I was not left exposed during delivery (2nd Stage).					

7	To what extent do you agree with the following statement The health staffs in the health facility are well suited to treat mothers during labour and delivery					
8	The equipment such as blood pressure machines used on me appeared to be in good working order					
9	How would you describe your level of satisfaction with the way staff responded to your questions and concerns during labour and delivery					
10	I was satisfied with the way the midwife conducted my delivery					
11	How would you rate your level of overall satisfaction with the treatment provided by the health staff of the facility from admission, during labour, during delivery and after delivery?					

SECTION F: SATISFACTION WITH CHILDBIRTH SERVICES IN THE LATEST DELIVERY

1. **Very satisfied**
2. **Satisfied**
3. **Neutral**
4. **Dissatisfied**
5. **Very dissatisfied**

	During this latest delivery, were you satisfied with the following health services?	1	2	3	4	5
1.	Consultation Time					
2.	Communication by the health care workers					
3.	Availability of staff in the delivery rooms					
4.	Availability of Staff in the post natal wards					
5.	Cleanliness in the health facilities					
6.	Privacy in the delivery rooms					
7.	Availability of drugs and supplies					

Thank you for your time and cooperation. I really appreciate your participation

Uasin Gishu County Health Facilities

APPENDIX III: APPROVAL LETTER FROM SGS

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY (MMUST)

Tel: 056-30870
Fax: 056-30153
E-mail: directordps@mmust.ac.ke
Website: www.mmust.ac.ke

P.O Box 190
Kakamega – 50100
Kenya

Directorate of Postgraduate Studies

Ref: MMU/COR: 509099

28th February, 2019

Damaris Jepkosgei,
HNR/G/36/15,
P.O. Box 190-50100,
KAKAMEGA.

Dear Ms. Jepkosgei,

RE: APPROVAL OF PROPOSAL

I am pleased to inform you that the Directorate of Postgraduate Studies has considered and approved your Masters Proposal entitled: "***Determinants of Bypassing County Public Health Facilities among Women Seeking Childbirth Services at Moi Teaching and Referral Hospital Eldoret, Kenya*** " and appointed the following as supervisors:

1. Dr. Mary Kipmerewo - SONMAPS, MMUST
2. Mr. John Arudo - SONMAPS, MMUST

You are required to submit through your supervisor(s) progress reports every three months to the Director of Postgraduate Studies. Such reports should be copied to the following: Chairman, School of Nursing & Midwifery Graduate Studies Committee and Chairman, Department of Clinical Nursing and Health Informatics and Graduate Studies Committee. Kindly adhere to research ethics consideration in conducting research.

It is the policy and regulations of the University that you observe a deadline of two years from the date of registration to complete your master's thesis. Do not hesitate to consult this office in case of any problem encountered in the course of your work.

We wish you the best in your research and hope the study will make original contribution to knowledge.

Yours Sincerely,

Prof. John Obiri
DIRECTOR, DIRECTORATE OF POSTGRADUATE STUDIES

APPENDIX IV: APPROVAL LETTER FROM INSTITUTIONAL ETHICS REVIEW COMMITTEE

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY
Tel: 056-31375
Fax: 056-30153
E-mail: ierc@mmust.ac.ke
Website: www.mmust.ac.ke
P. O. Box 190-50100
Kakamega, Kenya

Institutional Ethics Review Committee (IERC)

Ref: MMU/COR: 403012 vol2 (5) **Date: 26th** March, 2019

Damaris Jepkosgei
Masinde Muliro University of Science and Technology
P.O. Box 190-50100
KAKAMEGA

Dear Ms. Jepkosgei

RE: Determinants by passing county public health facilities among women seeking childbirth service at MTRH, Eldoret, Kenya -MMUST/IERC/21/19

Thank you for submitting your proposal entitled as above for initial review. This is to inform you, that the committee conducted the initial review and approved (with minor changes) the above Referenced application for one year.

This approval is valid from **26th March, 2019 through to 26th March, 2020**. Please note that authorization to conduct this study will automatically expire on 26th **March, 2020**. If you plan to continue with data collection or analysis beyond this date please submit an application for continuing approval to the MMUST IERC by **26th Feb, 2020.**

Approval for continuation of the study will be subject to submission and review of an annual report that must reach the MMUST IERC secretariat by **26th Feb, 2020**. You are required to submit any amendments to this protocol and any other information pertinent to human participation in this study to MMUST IERC prior to implementation.

Please note that any unanticipated problems or adverse effects/events resulting from the conduct of this study must be reported to MMUST IERC. Also note that you are required to seek for research permit from **NACOSTI** prior to the initiation of the study.

Yours faithfully,

Dr. Gordon Nguka (PhD)
Chairman, Institutional Ethics Review Committee

Copy to:
- The Secretary, National Bio-Ethics Committee
- Vice Chancellor
- DVC (PR&I)
- DVC (A & F)

APPENDIX V: APPROVAL LETTER FROM MTRH

An ISO 9001:2015 Certified Hospital

MOI TEACHING AND REFERRAL HOSPITAL

Telephone :(+254)053-2033471/2/3/4
Mobile: 722-201277/0722-209795/0734-600461/0734-683361
Fax: 053-2061749
Email: ceo@mtrh.go.ke/directorsofficemtrh@gmail.com

Nandi Road
P.O. Box 3 – 30100
ELDORET, KENYA

Ref: ELD/MTRH/R&P/10/2/V.2/2010

26th April 2019

Damaris Jepkosgei,
Masinde Muliro University,
P.O. Box 190-50100,
ELDORET-KENYA.

APPROVAL TO CONDUCT RESEARCH AT MTRH

Upon obtaining approval from the Institutional Research and Ethics Committee (IREC) to conduct your research proposal titled:-

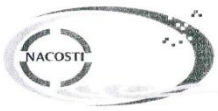
"Determinants of By-Passing County Public Health Facilities among Women Seeking Childbirth Services at Moi Teaching and Referral Hospital, Eldoret".

You are hereby permitted to commence your investigation at Moi Teaching and Referral Hospital.

DR. WILSON K. ARUASA, *MBS*
CHIEF EXECUTIVE OFFICER
MOI TEACHING AND REFERRAL HOSPITAL

cc - Senior Director, (CS)
- Director of Nursing Services (DNS)
- HOD, HRISM

APPENDIX VI: AUTHORISED LETTER FROM NACOSTI



NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone:+254-20-2213471,
2241349,3310571,2219420
Fax:+254-20-318245,318249
Email: dg@nacosti.go.ke
Website : www.nacosti.go.ke
When replying please quote

NACOSTI, Upper Kabete
Off Waiyaki Way
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No. **NACOSTI/P/19/52975/29352** Date: **6th May 2019**

Damaris Jepkosgei Lagat
Masinde Muliro University of Science
And Technology
P.O. Box 190-50100
KAKAMEGA.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Determinants of bypassing County Public Health facilities among women seeking childbirth services at Moi Teaching and Referral Hospital, Eldoret."*** I am pleased to inform you that you have been authorized to undertake research in **Uasin Gishu County** for the period ending **3rd May, 2020.**

You are advised to report to **the County Commissioner, County Director of Health Services and the County Director of Education, Uasin Gishu County** before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit **a copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.

GODFREY P. KALERWA MSc., MBA, MKIM
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Uasin Gishu County.

THE SCIENCE, TECHNOLOGY AND INNOVATION ACT, 201.

The Grant of Research Licenses is guided by the Science, Technology and Innovation (Research Licensing) Regulations, 2014.

CONDITIONS

1. The License is valid for the proposed research, location and specified period.
2. The License and any rights thereunder are non-transferable.
3. The Licensee shall inform the County Governor before commencement of the research.
4. Excavation, filming and collection of specimens are subject to further necessary clearance from relevant Government Agencies.
5. The License does not give authority to transfer research materials.
6. NACOSTI may monitor and evaluate the licensed research project.
7. The Licensee shall submit one hard copy and upload a soft copy of their final report within one year of completion of the research.
8. NACOSTI reserves the right to modify the conditions of the License including cancellation without prior notice.

National Commission for Science, Technology and innovation
P.O. Box 30623 - 00100, Nairobi, Kenya
TEL: 020 400 7000, 0713 788787, 0735 404245
Email: dg@nacosti.go.ke, registry@nacosti.go.ke
Website: www.nacosti.go.ke

REPUBLIC OF KENYA

NACOSTI

National Commission for Science, Technology and Innovation

RESEARCH LICENSE

Serial No.A 24510

CONDITIONS: see back page

THIS IS TO CERTIFY THAT:
MS. DAMARIS JEPKOSGEI LAGAT
of MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY, 0-30100 ELDORET,has been permitted to conduct research in *Uasin-Gishu County*

on the topic: ***DETERMINANTS OF BYPASSING COUNTY PUBLIC HEALTH FACILITIES AMONG WOMEN SEEKING CHILDBIRTH SERVICES AT MOI TEACHING AND REFERRAL HOSPITAL, ELDORET***

for the period ending:
3rd May,2020

Permit No . NACOSTI/P/19/52975/29352
Date Of Issue : 6th May,2019
Fee Recieved :Ksh 1000

.....
Applicant's Signature

.....
Director General
National Commission for Science, Technology & Innovation